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(From the Research Laboratory attached to No. 13 General Hospital, Boulogne-sur-Mer.)

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Physiological Action of Strong Salt Solutions.

IN connexion with the physiological action of strong salt solutions—and when speaking of strong salt solutions I have in view those containing about 5 per cent. of salt—we have to consider primarily the effect produced upon leucocytes. And we have to distinguish between the case where the strong salt comes into direct application, and the case where it comes into operation from a distance.

In the former case—both in pus and blood—the leucocytes are broken down; and, in pus, evidence is obtained of a setting-free of trypsin. In other words, strong salt solutions acting on a medium containing leucocytes will promote auto-digestion, and provide a nutrient substratum which will, as soon as the excess of salt is removed, favour the growth of microbes.

To study the effect of strong salt solutions acting from a distance we centrifuge blood in an emigration tube or cell[1]; let it clot; superpose our 5 per cent. salt solution; allow time for the salt to diffuse; and then incubate at 37° C.

FIG. 12 A.

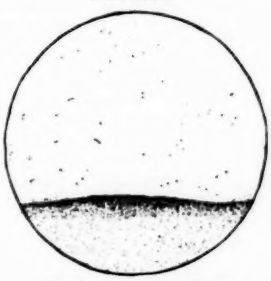
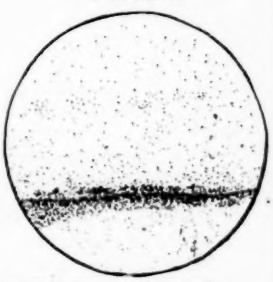


FIG. 12 B.



We have represented in A and B the lower portion of the white and the upper portion of the red clot obtained by centrifuging blood in one of Emery's cells. The white corpuscles only are shown in the figure. In A strong salt solution has been imposed upon the free surface of the white clot. In B physiological salt solution has been imposed. The appearances are described in the text.

Fig. 12 A shows the picture that we then get; and I add for comparison Fig. 12 B showing the picture obtained when we impose upon the blood, instead of 5 per cent., 0·85 per cent. salt solution. In each case we have: below, the red corpuscles; and above these, the layer of leucocytes; and above these again, the white clot. In A, where the 5 per cent. salt solution has been imposed, we have practically no wandering out of the leucocytes into the white clot. We have instead a tightly packed and sharply margined band of leucocytes intervening between the red and white clots. Below this we see a good many leucocytes which have, as it seems, travelled back from the leucocytic layer into the red clot. In other words, we have here, instead of positive chemotaxis as in B, paralysis, and presumably also negative chemotaxis. There would seem to be little doubt about the negative chemotaxis; for in companion tubes or cells, treated in every other respect than the salt solution as exactly alike, the white corpuscles have all been by the centrifugalisation separated out from the red. It will be appreciated in connexion with Fig. 12 A that the elements of the blood have, first by the mechanical force of the centrifuge, and secondly by the chemical stimulus of the strong salt solution, been disposed in what I have called the "kako-tropic" arrangement—i.e., the blood fluids are in front, and the leucocytes behind. The import of this in connexion with the conduct of the wound will presently appear. For the moment let us merely put it down upon our tablets that it would seem to follow from what we see in Fig. 12 A that we have in strong salt solution an agent which would be capable of arresting all suppurative processes.

Effect of Strong Salt Solution on the Condition of the Wound and the Microbic Infection.

The effect of strong salt solution on the wound will, of course, be the resultant of its physical and physiological effects; and there will be in addition an effect exerted directly upon the microbes.

This last may very quickly be dealt with and disposed of. Percentages of 2 per cent. will begin to inhibit, and 5 per cent. solutions will completely arrest the growth of pyogenic microbes. In other words, undiluted 5 per cent. salt solution will by itself—and this is to be borne in mind in connexion with proposals to combine this with carbolic acid—prevent any growth of microbes in the wound.

Let us, however, turn—for this is of more moment—to the effect exerted by the hypertonic salt solution on the condition of the wounds. And we may take the case of hypertonic solution applied to a sloughing or indurated wound. Now coming as it will here into direct application upon leucocytes, the strong salt solution will break these up, and set free trypsin, and favour auto-digestion; and, coming into operation at the same time on the walls, it will promote an outflow of fluid. The effect of this will be to loosen and separate the sloughs; to disperse the induration; and finally to give us, always provided that the concentration of the salt is maintained, a wound in which muscles and connective tissue lie before us as bare and clean, and as free from pus, as meat exposed on a slab at the butcher's. Moreover, impression preparations will show that the surface lymph is practically free from leucocytes; and that the sero-saprophytic microbes have disappeared, leaving behind only a few staphylococci or streptococci. This complete result is, as a matter of fact, only rarely seen—for applied, in the ordinary way on a pad of lint or gauze, the hypertonic solution is by the outflow of lymph very rapidly diluted.

But whether we have before us the complete, or only the incomplete, result, we have a wonderful improvement upon the state of the wound before treatment. None the less, the prospect for the future is not quite reassuring. In point of fact, we have here lying open and naked before us all the lymph spaces; and, moreover, the elements of the lymph are disposed in the

[1] The cell referred to is a special form of cell devised by my fellow worker, Captain d'Este Emery, and made by luting together two pieces of glass slide with paraffin wax.

'kakotropic arrangement"—the fluid elements which furnish a favourable culture medium in front, and the leucocytes which would be capable of combating the streptococci behind. And, at any rate so far as the superficial lymph spaces are concerned, there would now seem to be nothing to prevent microbial invasion save only that we have here an outflowing current.

But if the salt which has been absorbed into the tissues were no longer carried away; or if the saline solution outside were now to be diluted, the tide might easily turn and flow inward. In short, we see that we have made a successful advance; but that we must, before we can congratulate ourselves, advance a great deal more.

Our experiments in connexion with the bactericidal power of the whole blood tell us what our next step must be. If we want to keep the streptococci at bay, and destroy them, we must get the elements of our lymph into the agathotropic order; in other words, we must now bring forward our leucocytes. Our studies on emigration tell us how this is to be done. We shall have to substitute for our 5 per cent. 0·85 per cent. saline solution.

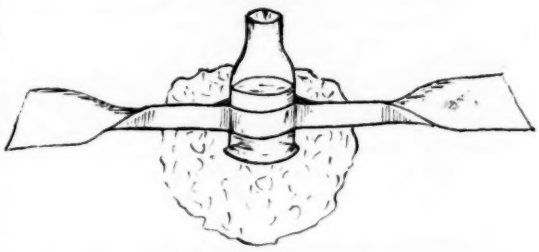
Effect of Physiological Salt Solution.

It will in connexion with physiological salt solution be unnecessary to go much into detail with respect to its physical and physiological action. All that requires to be emphasised is that 0·85 per cent. salt solution, which we call normal or physiological, is normal and physiological only with respect to its tonicity. It has, of course, a much higher content in sodium chloride than the blood fluids, and will, when placed in contact with these, send into them sodium chloride, exchanging this against other salts. It is to this different salt content that we have to ascribe the physiological action which 0·85 per cent. salt solutions exert when superimposed upon centrifuged blood. Fig. 12B has shown us what then invariably happens. The white corpuscles—and in particular the polynuclear white corpuscles—are carried forward by a chemotactic movement in the direction of the free surface upon which the physiological solution has been imposed. And precisely the same occurs in the wound. After the lapse of a few hours the perfectly bare wounds which are obtained by treatment with strong salt solution begin to clothe themselves with a fine grey film. And when we make impression preparations we find on the surface of our coverglasses a layer of beautifully well-preserved polynuclear white corpuscles. In other words, the elements of the lymph are now in the agathotropic arrangement; and microbes if found at all are only very few in number.

This marks another great step in advance. It is, however, as we shall presently see, one that falls very far short of a final conquest over the infection. But for the moment let us turn aside and see what will happen when hypertonic salt solution is applied to a clean, or, as the case may be, a suppurating wound, and is then diluted. We shall see our new data dovetailing perfectly with the old.

To study the sequence of events where a hypertonic salt solution is spontaneously diluted with outflowing lymph, we carefully clean the surface of a granulating wound. We then bring down upon it—and I owe this piece of technique to my fellow worker, Lieutenant H. H. Tanner—a *lymph cup* such as is shown in Fig. 13, fastening it down securely upon the skin by strips of adhesive plaster. We now introduce a measured quantity of hypertonic solution into our lymph cup, and then from time to time re-measure and sample the fluid. During the first hour or more only a *lymphagogic effect* is produced. The fluid in the cup increases in quantity—in an experiment I have in mind the original 3 c.c. of 5 per cent. salt solution increased in three hours to 5 c.c.—but the fluid remains quite limpid. After that a *leucocytagogic effect* begins to manifest itself. First a few, and then more and

FIG. 13.



more leucocytes emigrate into the fluid in the lymph cup; and the streptococci, which in the first phase of the experiment may have been fairly numerous, gradually decrease until it is difficult to find them.

To study what will happen when 5 per cent. salt solution is brought into operation upon a suppurating surface and is afterwards diluted, we take a sample of pus, mix it with 5 per cent. salt solution, and then place it in the incubator. We then dilute with sterile water until we have brought down the content in salt to 0·85 per cent., and then we incubate for a further period of hours. After the expiration of that period we find—and we may put this down to the setting free of trypsin from the cells broken down by the strong salt solution—a much more luxuriant growth of microbes than in a control sample incubated for the whole period with physiological salt solution.

Reverting now to our wound which was treated with physiological salt solution you will remember that we had there a position won but not consolidated. And if events were now allowed to take their course, the leucocytes which had been drawn up to the surface, and in particular, perhaps, those which had done service in the destruction of microbes, would not long maintain their vitality. For the conditions which prevail on denuded surfaces are, as we have seen, uncongenial to leucocytes. Now just as soon as the first leucocytes die and break up and set free their trypsin all those in the neighbourhood become involved in the same ruin; and this provides for any microbes that have survived, or come in from outside in an eminently favourable culture medium. After this we have very soon upon our wound surface, in the place of an almost extinguished infection, a luxuriant culture of microbes. And though, no doubt, it might be possible by instituting continuous irrigation with physiological salt solution, still to hold on, our position cannot really be consolidated by anything except the restriction of the infected surface and the final closure of the wound. In other words, that as soon as we have practically conquered the infection surface, we ought, as I said in an earlier section of this lecture, to proceed immediately to secondary suture of the wound.

IV.—TREATMENT BY VACCINES.

Treatment by vaccines would have hardly any meaning in connexion with antiseptic treatment; but it is, as a moment's consideration will make plain, very intimately linked up with phylacagogic

treatment. For, once we have made up our minds that an infection will have to be fought by the protective powers of the organism, it will be reasonable to look round and see whether the protective powers of the organism generally cannot be reinforced. And it will also occur to the mind that not only the blood fluids could be reinforced in protective substances but also chemotactic sensibility of the leucocytes could be so altered as to give a more vigorous emigration response. If this were secured, the leucocytes would not only come more rapidly and more effectively into action, but they would come into action in the whole theatre of infection instead of, as in the case where salt solutions are applied, only in those regions into which the salt is conveyed by diffusion.

Having seen where vaccine-therapy fits in, we have next to consider how and upon what principle we shall select from the bacterial flora of the wound those microbes which ought to be combated by vaccines. The principle here is quite clear: we ought to direct our attention to those microbes which are least easily killed by the protective elements of the blood. That will mean that we ought to put into our vaccine primarily the streptococcus and the staphylococcus, for these belong to the class of serophytes; and in the second instance the bacillus of Welch and the bacillus proteus, for these belong to the class of imperfect serophytes, microbes which will, provided we make a sufficiently heavy implantation, establish themselves and then grow luxuriantly in the blood. Let me explain that whenever in the following I speak of a vaccine for bacterial infections of wounds I shall have in view either (*a*)[2] a vaccine containing streptococci and staphylococci obtained from wounds, or (*b*) a vaccine which contains in addition to these the bacillus of Welch.

The question of the vaccine settled, the next question is at what stages in the wound infection we can find specially favourable opportunities for the use of vaccines. The *first* of these specially favourable opportunities will present itself immediately after the wound has been received. The patient is here just entering upon his incubation period; and it may quite well make all the difference to him if he is now, before the microbes which have been carried into his tissues grow out, enabled to kill them. I hold very strongly—and there would be no difficulty at all in arranging for this—that every wounded man should be inoculated as soon as he reaches the first-aid post. A *second*, and also very favourable, opportunity of achieving definite good by inoculation would present itself at a later stage, in those cases where the streptococcus or the bacillus of Welch, or the two acting in conjunction, establish a footing in the tissues, and begin to spread there. I am thinking, of course, of the early stage of erysipelas, cellulitis, or gaseous emphysema, where we have, as the case may be, the beginnings of an inflammatory blush on the skin, or the beginnings of induration, or may be that purplish mottling of the skin which heralds gaseous gangrene.

And the employment of vaccine would also be specially opportune when we address ourselves to the partial or complete secondary suture of the wound. For the conditions are here analogous to those which obtained when the original wound was received—analogous in the respect that we have in both an implantation of microbes into the depth; and analogous also in the respect that success or failure will hinge upon the rapidity and effectiveness with which the protective elements of the blood are brought to bear upon the implanted microbes.

But to all this it may be objected that we have here merely plausible theoretical considerations; and that what is required is direct evidence establishing the utility of inoculation.

Let me therefore consider with you how far it would be possible here to procure probative evidence; and for the sake of those who attach superior authority to clinical evidence, let us begin with this.

A comparison of what would be procurable in connexion with antisepsis inoculation with what has been procured in connexion with anti-typhoid inoculation will here clear up certain points for us. The first of these is, that once a man has been inoculated against typhoid, events will take their course unaffected by outside interference. In other words, if an inoculated man comes into contact with infection, and the typhoid bacillus effects a local lodgment in him, nobody comes and interferes between the organism of the patient and the invading microbe. Moreover, when the invading microbes are successfully disposed of, there will not remain open any door to after-infection. The exact reverse will hold of antisepsis inoculation.

Here there will be all sorts of interference, useful or, as the case may be, harmful, at the point where the microbes have effected a lodgment; and the wound will remain open to further infection from outside, and in particular it may readily be reinfected in the course of operative interference. By reason of this it will, if the wound becomes septic, be impossible to tell whether the responsibility lies with the microbes originally implanted, or whether these were killed off, and we are in presence of an after-infection. Enough will have been said to show that it will be quite out of the question to procure in the case of antisepsis inoculation trustworthy statistical data such as are available in connexion with typhoid.

Precisely the same will hold true in the case of antisepsis inoculation undertaken as a preliminary to secondary suture of the wound. For here everything will depend on the operative skill of the surgeon and on the scientific preparation of the cases. And the only judgment which will have value will be that of the surgeon who has actually followed the cases; and, again, his opinion will have value only if he have experience also of cases of secondary suture undertaken without inoculation.

There remains the third class of case, that where vaccine is employed to abort an incipient infection of tissues. Here, again, statistical proof will be unattainable. When, however, a sufficient number of separate observers shall have experimented with the vaccine, using controls, and shall have formed each his own experiential judgment, we shall have evidence which will really have probative value. But experiential judgments of that kind are not yet available in sufficient number.

For the present, therefore, there is not—nor will there ever be, except only in connexion with the last class of case—anything to carry conviction to that type of man who puts aside what he calls "theory" and demands everywhere proof and certainty.

But while we have in these matters no certainty—and let us not regret it overmuch, for certainty is like the stick without the dog to the blind man who wants "to get a move on"—we

[2] Both varieties of vaccine are available in all military hospitals, the first under the designation "*antisepsis vaccine*," the other under that of "*antigangrene*" vaccine. If an autogenous vaccine were to be made for a particular patient one would determine the microbes which menaced him by taking a sample of his pus and making, as described in the first portion of this lecture, progressively smaller implantations of this into his serum or blood by the method of pyo-sero-culture, or pyo-hæmo-culture, and then using for the vaccine those microbes which grew most readily in the blood.

have here all that an exacting mind could require in the way of inferential evidence of the value of immunising response in wound infections. Such evidence is furnished by the fact that patients who make only very indifferent immunising response suffer from long-continued pyrexia, and their wounds heal slowly, and they not infrequently develop serious complications, in particular in the form of spreading infections and metastatic infections of joints. The direct reverse holds of patients who are making satisfactory immunising response. Their wounds heal rapidly; and they never give cause for a moment's anxiety. Now such immunising response as we see here safeguarding the patient is, in the case of healthy men—and I reckon as healthy men all who are not suffering from auto-inoculations and fever—readily obtainable by the inoculation of vaccines.

I have now completed what I have to say about the different ways of treating wound infections; and you will have appreciated that, while antiseptic treatment stands apart, the three other methods are closely interlinked—forming together a complete system of phylacagogic treatment. Let me now draw the threads together, and put before you in outline a scheme which might serve as a basis for the treatment of wound infections.

Before that, however, let me just pause to express my gratitude and indebtedness to my fellow-workers in these researches on the treatment of wounds, and in particular to Captain S. W. Patterson, of the Australian Medical Service, to Captain d'Este Emery, and to Lieutenant A. C. Inman and Lieutenant H. H. Tanner. And I have at the same time to express my grateful acknowledgment to the authorities of the Army Medical Service, and to Colonel W. l'Estrange Eames, C.B., of the Australian Hospital, and, above all, to the Medical Research Committee for placing the services of these officers at my disposal

SCHEME FOR THE PHYLACACOGIC TREATMENT OF WOUND INFECTIONS.

It will be convenient for the ordering of this scheme of treatment to follow the wounded man from the "first-aid post" back through the whole system of hospitals.

Treatment in the First-Aid Post.—Here, after hæmorrhage has been arrested and the wound has been cleaned and bandaged and splints have been fitted, it will be well to give a prophylactic injection of "antigangrene vaccine," this being, as already explained, a vaccine containing the streptococcus, and staphylococcus, and bacillus of Welch. For this injection nothing in the way of apparatus would be required beyond a syringe in a metal case and the vaccine in a rubber-capped bottle. From this last the vaccine would be drawn off as required through the rubber cap sterilised with lysol or other antiseptic. To sterilise the skin at the point inoculated is, in connexion with injection of vaccine, a work of supererogation.

There would follow upon the inoculation a rapid immunising response which would, one is entitled to anticipate, in a bullet wound perforating only tissues extinguish the infection, and would in other wounds do the same in those regions where the physiological conditions were not too unfavourable.

Treatment in the Field Ambulance.—I would suggest that the work of the field ambulance, which is—except in the case of the wounded who are too ill to move—restricted to mere washing and sterilising operations, to the application of clean, dry dressings, and to the injection of tetanus antitoxin, should be extended to the performance of simple operations for the excision of the projectile and foreign bodies, and the procuring of efficient drainage. And I would suggest that all wounds, with the exception of those which promise to get well of themselves, should be treated with hypertonic salt solution. These suggestions are dictated by the consideration that where a wound will, if left to itself, certainly become septic, we ought, at the earliest possible moment, both to remove extraneous substances which contain microbes, and provide for a free outflow of lymph from the whole internal and external surface of the wound.

Concerning the operative procedures for the procuring of drainage it will suffice to say that they ought to give sufficient access to permit of loops of sterile bandage, previously steeped in a solution of 5 per cent. sodium chloride and 0·5 per cent. sodium citrate, being carried down into the wound to serve as wicks.[3] The introduction of the bandages ought to be prefaced by a syringing out of the wound with the aforesaid solution, and the free ends of the bandage ought to be carried out from the wound to be inserted between plies of lint well soaked in the same solution, and folded over so as to form a thick pad. Finally, one or two tabloids of salt ought to be planted in between the back layers of the pad, and over the top of all ought to come a layer of impervious protective tissue. This method of dressing ought to be applied also to the open funnel wound. In the case of a "gouged-out" or "punched-in" wound of soft tissues the wicks of bandages would, of course, be dispensed with.

This will be the place to elucidate two points which come up for consideration everywhere when hypertonic salt solutions are used as lymphagogic agents. The first has reference to the concentration of the salt, the second to the addition of citrate of soda.

In connexion with the concentration of the salt all strengths from that of sea water—corresponding to about 2·5 per cent. of sodium chloride—to a saturated solution—corresponding to 30 to 40 per cent. of sodium chloride—have been used in the wound; and the stronger the salt solution the greater the lymphagogic effect. But as the concentration of the salt increases, treatment will be more and more painful until with saturated, and nearly saturated, salt solutions we get escharotic effects with intolerable burning on the wound surfaces; while on the skin there is produced severe irritation followed by bacterial infection. The strength of the salt solution must therefore be kept within limits. Where we have freshly cut edges of skin, and, as in the flapless amputation, nerve fibres exposed in the wound, it will be unjustifiable to employ more than 5 per cent. of salt; and even then it will be well to protect the cut edges of the skin with a thin coating of vaseline. When, on the contrary, we are dealing with comparatively insensitive granulation tissue, or with quite insensitive sloughing surfaces, we may, with a view to achieving more rapid results, employ somewhat stronger solutions. But even with sloughing wounds it will be better not to go beyond 10 per cent. of salt. Again, when we use a wet pack of salt solution, it will be well to protect all the skin in the neighbourhood with a coat of vaseline. And finally, when we use, as suggested above, tabloids of salt to keep our salt solution up to strength, in despite of outflowing lymph, care must be taken to prevent the solid salt coming into contact with the wound surface.

[3] Vide here the author's Memorandum on the Employment of Bandages for the Draining of Wounds, THE LANCET, Oct. 16th, 1915.

Passing now to the question as to when citrate of soda should be employed in combination with hypertonic salt solutions, it may be explained that the purpose of the citrate is to prevent the lymph coagulating in the siphon bandages and on the walls of the wound. I may point out, in connexion with this, that while 5 per cent. salt solution will, as already Alexander Schmidt showed, prevent clotting, it will not, as my fellow worker, Lieutenant A. C. Inman, has shown, prevent clotting in blood that is mixed with pus. Such blood is, however, prevented from clotting by 5 per cent. salt mixed with 0·5 per cent. of citrate of soda. The practical rule, therefore, will be to add citrate of soda when we are confining the discharge and may be dealing with pus; and to omit the citrate as unnecessary when we are irrigating and washing away any pus.

Treatment at Casualty Clearing Stations.—As the patient is transported farther and farther back from the front, and X ray and other equipment becomes available, it becomes possible to undertake more extensive operations for the procuring of drainage, and for the removal of the projectile and extraneous substances, as well as for resection of hopelessly infected tissues. But we have always in connexion with operations upon a patient who has to be transported farther, to consider not only the practicability of the operation, but also that of keeping the patient under close observation sufficiently long after we have operated. It must be remembered here that the wound infection is always the important factor to keep in view, and that the period which is occupied in transport will generally represent for the patient a period of retrogression; and the set-back will generally be proportionate to the duration of the journey. During transport drainage will, unless this can be prevented by wet salt packs applied under protection, be interrupted; the wound may become "lymph-bound," and then cellulitis or gas gangrene may supervene. Or again, if the wound has arrived at the suppurative stage, the discharges will be confined and become tryptic, and corrupt.

This will, of course, apply retrospectively as well as prospectively, so that in every hospital which receives patients from the front its work will consist largely in efforts to regain for the patients ground lost upon their journey. In particular the induration of the walls of the wound will require to be dispersed, and relief will have to be obtained for the wounds that are lymph-bound.

Treatment at Hospitals at the Base.—Operative work will here be called for in connexion with two classes of cases. First there will be cases of spreading infection in the tissues—cellulitis and gaseous gangrene—which have manifested themselves during transport. These will require treatment by free incision supplemented by hypertonic salt solution. Further, there will be operations postponed from the Casualty Clearing Stations—postponed either because of pressure of work or for the patient's sake, to give him the benefit of special equipment or special operative skill available at the base, and in conjunction with this the longer hospital stay which is there permissible.

The longer hospital stay will, when it can be secured, allow of quite important progress in the conduct of the wound infection. It will then be possible to embark upon, what I may call, the full programme of phylacagogic treatment.

In this programme we first irrigate with a hypertonic salt solution until we have restored the tissues to their natural condition; and are dealing with a mere surface infection, and only with serophytic bacteria. We then irrigate with physiological salt solution till we have extinguished, or all but extinguished, the surface infection. And we then undertake, in one, or in a series of successive operations, secondary suture of the wound.

The essential features of these three linked procedures have already been explained, but the details remain to be worked out. The following practical points may, however, be emphasised.

Lymphagogic irrigation.—The irrigation and drainage of the wound may with advantage be conducted by the methods which form the subject-matter of the demonstrations already referred to (see Footnote 3). The solution which I would suggest for use is a 5 per cent. solution of sodium chloride, boiled, and kept at a temperature of 37° to 40° C. Irrigation with this solution ought to be continued *de die in diem* until the desired result is obtained. If we fail in this we have probably some retention of pus in inaccessible spaces, and these ought to be opened up. Whether irrigaiton ought to be continuous, or whether it ought to be continued for only a few hours at a time, remains to be determined.

Leucocytagogic irrigation.—Our therapeutic solution will here normally consist of boiled physiological salt solution. It, however, remains to be determined whether in those cases where secondary suture is for any reason impracticable, it may not be better to substitute for physiological salt solution some such fluid as Ringer's solution or Locke's solution (without the sugar), whose salt content will more nearly resemble that of the blood—such a fluid, though as a leucocytagogue not so good as physiological salt solution, might quite as well prove more favourable to the growth of connective tissue and epithelium.

There remain over now two general questions with regard to which an explanatory word must be said. The *first* relates to infections of joints and serous cavities which are shut off from the exterior; the *second*, to the employment of antiseptics and antiseptic precautions in connexion with operative interference and the various manipulations and procedures undertaken in the wound.

Treatment of infections in unopened joints and serous cavities.—The complete programme of lymphagogic treatment, leucocytagogic treatment, and secondary suture is, of course, a programme for open wounds. But lymphagogic treatment will be superfluous where we have a purely surface infection in a closed cavity. And the question of secondary suture will not come up, unless we have first opened up widely—a method of treatment which is, at least in infections of the knee-joint, of very doubtful wisdom. There remains accordingly of our programme only the irrigation with physiological salt solution, and in combination with this effective drainage. In the particular case of a knee-joint infection the fluid could be supplied through one needle and be carried off through another. Or the fluid might be carried in through a fine rubber tube inserted in a very small incision. And the fluid might be allowed to find its own way out, or it might be carried out by a siphon of sterile bandage inserted through a small counter opening and carried down to a vessel of water standing on the floor.

Employment of antiseptics and resort to antiseptic precautions in connexion with the wound.—The employment of antiseptics and the taking of antiseptic precautions in connexion with all operations and manipulations in wounds is governed by the consideration that the patient will have made immunising response only to those microbes which the projectile carried into the wound, and to those contained in the vaccine—these being *ex hypothesi* those present at the outset

in every wound. To all other microbes the patient will, except only so far as the increase of his antitryptic power may protect him, be fully susceptible. From this it follows that we shall, if we neglect any antiseptic precaution, be running the risk of superadding to the already subsisting infection another infection; and in hospital we shall be running the risk of transferring infections from patient to patient. Herein then lies the justification for prescribing the prophylactic employment of antiseptics and antiseptic precautions, and in particular the use of sterile instruments and sterile gloves in connexion with the dressing of patients, and in association with this the sterilisation of all bandages and salt solutions used in the wound.

CONCLUDING REMARKS.

I pass in conclusion—for in the end one's thoughts always take that direction—to the problem as to whether it would not be possible for the researches I have detailed to bear fruit in a wider sphere than that represented by the present audience and those who will perhaps read this discourse.

You see that my mind is here set upon those questions of organisation concerning which I ventured to say something when lecturing here some six months ago.[4] Let me to-day again break ground for you by indicating that there are included in the Army Medical Service in reality three different services—a Service of Administration; a Service of Sanitation; and a Service for the Treatment of the Sick and Wounded. And let me again, in connexion with the last-mentioned, ask you to remember that it is staffed almost exclusively by medical practitioners joining for the war; and that the civil profession is by consequence specially responsible for its efficiency. Now, if that is so, it then must be for the civil profession a duty of special obligation to see that whenever, in the practically unexplored field of wound infections, any new knowledge is gained, that new knowledge shall be brought into application in all military hospitals.

At the beginning of the war the outlook so far as it related to the wounded was, I think, somewhat as follows:—

It was realised that all sorts of surgical operations in which life would be at stake would have to be undertaken; and that these would, under the conditions that existed, fall to new-joined junior medical officers with very little operative experience. There were, therefore, sent out to the theatre of war a certain number of eminent surgeons.

Here at the very outset we see recognition of the fact that the rank and file of new-joined medical officers will require—and, moreover, will very gratefully accept—skilled help and supervision.

There were two alternative ways of supplying help and supervision.

The one was to associate the eminent surgical experts with the Medical Service of the Army in the capacity of consulting surgeons. To do so, was not to follow the precedent of civil life: for in civil life the operating surgeon is not consultant and adviser to the operating general practitioner. Nor was it to follow the precedent of the army. But, at any rate, that was the course that was adopted.

The other and, I think, the better alternative would have been to have made those who now function as surgical consultants integral elements in the army machine; to have entrusted to them the selection of the operating staff in the hospitals in their administrative unit; and then to have made them directly responsible for all operative treatment in those hospitals. All this touches, but only indirectly, the particular point in organisation I want you to consider.

What seems to me specially required is the organisation of all that department of treatment which lies outside the sphere of the operating surgeon, or at any rate the sphere of the operating theatre. Before the war it was generally held about this department of treatment—let me call it for short "the conduct of the wound infection"—that all that would be required would be: to drain the wound, by making an opening at the most dependent point; then to wash out with antiseptics; and finally, to apply dressings. And it was held—and no doubt correctly—that for the proper carrying out of the antiseptic washings and dressings, any doctor who was on the Medical Register, or any trained nurse would suffice.

Now the wind has swept this all away, and it has come home to everybody that every wound is infected and that the infection is the really serious element in wounds. Coming on the top of this, practically everybody has become aware that the antiseptic system has—so far as the treatment of the wound infection is concerned—completely broken down. So finally it comes to this, that the progress of knowledge has filched away from the ordinary medical officer everything, other than the knife, which he was relying upon for the treatment of bacterial infections of wounds.

And though here and there he may have substituted for the antiseptic hypertonic salt solution; that is, as we have seen, only to take one item out of the programme of bringing the protective elements of the body to bear upon the infection; and what is required is the complete programme. Now to carry out the complete programme it will be necessary to stop every moment and think; and it will be necessary also to verify every step; and to make as occasion requires new departures. Now to stop every moment and think, is not given to everybody; and to verify, and as occasion may require rectify, one's course in combating a bacterial infection involves thinking in terms of microbes and protective substances and auto-inoculations and vaccines, and involves also a certain acquaintance with laboratory technique.

So that I have the conviction that a newly joined medical officer, supposing him left completely without supervision and help, would more easily perform successfully all the surgical operations that might be required of him than conduct satisfactorily the treatment of a wound infection.

If that is so—and it is for you to judge whether it is so—what follows is that it will be necessary to provide in connexion with the conduct of the wound infection the same kind of aid and instruction as is provided in connexion with operative surgery.

And what holds true with respect to the organisation of the one, will hold true also with respect to the other. For the conduct of the wound infection, which we are here considering, one would wish to have in each large administrative unit a responsible head disposing over a staff of men with both laboratory and clinical experience, who would be deputed one to each hospital to exercise supervision as "a physician in charge of wounds" over all that department of treatment which lies outside the sphere of operative surgery.

And I would emphasise that it would be just as necessary in the case of the "physician in charge of wounds," as in the case of the "surgical specialist," to confer such rank as would make it possible effectively to direct the operations of the medical officers working in the wards.

[4] THE LANCET, May 1st, 1915, p. 898.

The Bradshaw Lecture

ON

NERVOUS AFFECTIONS OF THE SIXTH AND SEVENTH DECADES OF LIFE.

Delivered before the Royal College of Physicians of London on Nov. 2nd, 1915,

BY J. MICHELL CLARKE, M.A., M.D. CANTAB., LL.D. BRISTOL, F.R.C.P. LOND.,

PROFESSOR OF MEDICINE, UNIVERSITY OF BRISTOL; LIEUTENANT-COLONEL, R.A.M.C. (T.).

PART II.[1]—DISEASES OF THE BRAIN.

PASSING now to diseases of the brain, I do not propose to deal with meningitis except briefly with the tuberculous variety, and that on account of the peculiarity of its symptoms in adult cases. Meningitis due to pus-producing organisms becomes uncommon after 50; when it occurs as a primary infection the diagnosis is now greatly facilitated by lumbar puncture. Perhaps the most frequent form is the pneumococcic, which may either be primary, or a complication of pneumonia, or one feature of a general pneumococcic infection. I shall omit chronic internal pachymeningitis, as it is rare apart from mental disease.

Tuberculous Meningitis.

Tuberculous meningitis in persons over 50 is very exceptional. Of 560 cases of tuberculous meningitis four had passed this age. There were also eight cases between 40 and 50. In adults it occurs chiefly as the termination of chronic pulmonary tuberculosis. In Seity's statistics, quoted by Sir Thomas Barlow,[2] in which childhood is excluded, of 126 cases between the ages of 16 and 60 years, 4 occurred after 50 years and 15 between 40 and 50. Dr. W. B. Warrington[3] states that there is generally an incubation period of three to four weeks and then rapid onset of coma ending in death within a week. The early symptoms may be deceptive and mistaken for early mental disease, hysteria, or delirium tremens. He quotes Jaquet,[4] who found that of 204 fatal cases of chronic phthisis, 7 died from tuberculous meningitis between 41 and 68. In several the symptoms developed with great suddenness, and two patients were picked up unconscious in the street. Jaquet gives the average duration as ten days. In a man aged 52 under my care the last illness began with obstinate vomiting lasting seven days, then there was a remission for two days, when diplopia and intense headache came on, followed by coma, fatal on the fourteenth day. There was no retraction of the head and no optic neuritis. Well-marked signs of pulmonary tuberculosis were present.

Two other cases were aged 47 and 46; both died in coma after a last illness of seven and ten days respectively. The primary disease was in one a tuberculous orchitis.

Cerebral Hæmorrhage and Thrombosis.

The most common of all nervous affections between 50 and 70 years of age are those due to disease of the cerebral vessels, which are not, strictly speaking, nervous diseases, but the secondary effects on the nervous tissues of disease of their arteries. The causes and methods of prevention therefore belong to diseases of the vascular rather than of the nervous system. The subject of vascular disease of the brain is too extensive to be considered here. With regard to the age incidence of 500 cases of cerebral hæmorrhage the onset was between the ages of 50 and 70 in 321, or 64 per cent., and of 110 cases of cerebral thrombosis in 67, or 60·9 per cent.

Cerebral Tumours.

With regard to the age incidence of intracranial tumours there are available the very valuable statistics compiled by Dr. Tooth.[5] The age of onset of the first symptoms, verified or not by operation or post mortem, in his 500 cases was between the ages of 50–70 in 7·2 per cent. In 238 of these the nature of the growth was verified by operation or post mortem; of these the age at onset was between 50 and 70 in 9·6 per cent. The gliomata constituted 49·2 per cent. of the total, and of these 10·27 per cent. occurred at from 50–60 and 0·7 per cent. at 60–70 years of age. The carcinomata were few in number, but the percentage between 50 and 70 was nearly 40. In a further number of 485 cases which I have collected from various sources, similarly verified or not, the proportion between 50 and 70 is rather higher, 13 per cent.

Bruns mentions the infrequency of cerebral tumours in the later years of life, and states that he has only seen one case over 60.

In 18 cases of intracranial tumour in persons over 50, in 12 of which the diagnosis was verified by post-mortem or operation, in one the tumour was cerebellar, in two it was in the cerebello-pontine angle, and in the remainder in various parts of the cerebrum. Three of the patients were over 60 years of age. In several of the cases the sudden onset of symptoms suggested some intracranial circulatory disturbance. Thus in four cases the first symptom was an attack of vertigo resulting in a fall and occurred during active exercise.

As to special symptoms, optic neuritis was well marked, attacks of vertigo especially frequent, and apart from the situation of the growth mental changes were prominent. In two cases the intracranial growth was secondary to cancer of the breast. The period of life under consideration is, of course, that in which cancer is most frequent. Affection of the nervous system by cancer is generally through secondary metastatic growths. The order of frequency of metastases is (1) vertebræ, (2) bones of skull, (3) brain, and (4), very rarely, spinal cord. These secondary growths may occur in any part of the brain and are often multiple. They may form diffuse or localised tumours. Symptoms may be pronounced and dominate the case, or, on the other hand, absent or overshadowed by those due to growths in other organs, and the intracranial metastases only discovered post mortem.

The diagnosis of a cerebral tumour in a person over 50 is often difficult. In the case of a primary tumour the symptoms may be attributed to other diseases of the brain more frequent at this period of life. Thus for the mental disturbance produced by a growth other causes may easily be assigned; headache and vertigo are common complaints in persons over 50, and of various origin; and hemiplegia or monoplegia would rather suggest vascular disease, though the gradual onset of hemiplegia is always suggestive of a tumour.

To sum up, an intracranial tumour is relatively uncommon in persons over 50, and still more so in those over 60; when it occurs diagnosis may be more difficult than in younger persons.

[1] Part I. was published in THE LANCET of Nov. 6th (p. 1016).
[2] Allbutt and Rolleston's Systems of Medicine, vol. viii., p. 203.
[3] THE LANCET, vol. ii., 1910, p. 1754.
[4] Deutsche Medizinische Wochenschrift, 1910, i., p. 449.
[5] Loc. cit., p. 61.

CEREBRO-SPINAL SYPHILIS.

Turning to syphilis, the proportion of cases of cerebral syphilis over 50 is relatively small. Of 261 cases 9 per cent. were over 50 and only 3 cases over 60 years of age; these include 60 personal cases in which the number over 50 was 8. The maximal frequency of the disease falls between 30 and 45, or according to Neumann,[6] whose data, however, are taken from post-mortem results, between 30 and 39 years. The interval between infection and onset of nervous symptoms is in the majority within 10 years, often, of course, much earlier. The statement that has been made that the older the patient the shorter the interval between infection and appearance of cerebral symptoms seems not to be correct.[7]

In cases over 50 a certain number are due to late syphilitic infection; in three of my cases the age of infection was 35, 44, and 46 respectively, and signs of cerebral syphilis appeared from 12 to 15 years later. In the remainder the late onset of cerebral disease is due to a long interval after infection. The symptoms do not seem to differ greatly from those in younger patients. In two of my cases in which the interval between onset and infection was very long affection of the cranial nerves was the chief feature. Head and Fearnsides[8] give a case aged 56, syphilis at 44, and another aged 47, in which a third nerve paralysis was the chief affection, and a third aged 55, syphilis at 25, in which many cranial nerves and also some spinal roots were affected. Vertigo, as in cerebral tumours in later life, is often a prominent symptom. The question as to the part played by previous syphilitic infection in the production of disease of the cerebral vessels—i.e., as to the proportion of cases of apoplexy or hemiplegia occurring after 50 which are due to vascular disease as the direct result of a previous syphilitic infection—is a very important one, but I am not able to give exact statistics.

It is now generally recognised that fits indistinguishable from those of idiopathic epilepsy may occur as a result of cerebral syphilis. So far as I have been able to ascertain, the age of onset as a rule is before 50. I have seen two cases over 50: one, a man aged 60, syphilis at 46, had attacks resembling petit mal; and the other was first affected by repeated severe epileptic seizures at 54.

Syphilitic affections of the spinal cord are relatively still more uncommon after 50 than those of the brain. It is stated by Head[9] that "there is no period after infection when the patient may not be attacked by a paraplegia." Generally the symptoms of spinal syphilis follow somewhat early after infection. This is especially the case in syphilitic meningo-myelitis, which may occur within six months of infection. Oppenheim[10] states that in the great majority spinal syphilis develops within six years. The relation of syphilis to myelitis has been already discussed.

It might be thought that Erb's syphilitic spastic paraplegia would be found late in life. These cases are certainly of mixed origin. The exact nature of the lesion can only be determined by a post-mortem examination. Pathological investigation seems to show that only a small number described as syphilitic spastic paraplegia depend on a pure degeneration of the pyramidal tracts. Dercum[11] has recorded a case clinically corresponding to this disease, in which the pathological change was a meningo-myelitis, in a man aged 66. My cases have been between 35 and 50. As, however, this variety runs a longer course than other syphilitic affections of the spinal cord, there would be a greater probability of survival after 50.

In 3 out of 35 cases of various forms of spinal syphilis the patients were over 50. One was a man aged 53 who contracted syphilis at 22, with onset of spinal symptoms at 40. Affection of spinal roots gave rise to the chief symptoms. The disease was probably a chronic meningitis, and was remarkable for its long duration. The second case was clinically a transverse myelitis in the lower dorsal region of the cord. The onset was subacute at the age of 56, and syphilitic infection occurred at 37. The third was one of spastic paraplegia in a woman aged 62, whose husband had tabes.

To sum up, the onset of cerebral syphilis after 50 is not common, of spinal syphilis rare, and for both still more rare after 60.

THE NEUROSES.

I now pass on to consider some of the neuroses. Of *migraine* the commonly received opinion is that the sufferers from it either lose their attacks or that these become mitigated in later life, and that in women this relief is to be expected after the climacteric. A confident prognosis is often given to this effect. Speaking generally, this opinion seems to be correct and migraine is uncommon, at any rate in a severe form, after 50. Such a prognosis can, however, only be given on general grounds; it is impossible to say in an individual case that lapse of years will give relief. Many patients suffer from more frequent attacks during the climacteric, and in a certain number an increase in the frequency and severity of the attacks dates from this epoch. Heredity to the disorder itself, and to other neuroses, is marked in most cases of migraine and is generally pronounced in those cases that persist in later life. Overpressure of work, especially mental work, is also a cause of its persistence.

Does migraine lead to permanent paralysis later in life or to persistence of one of the symptoms of the paroxysm as a permanent defect? Where especially a premonitory hemiopia has been a constant feature of the paroxysm is permanent hemiopia likely to result? I have seen one instance of this in a woman aged 35, and another in a man aged 54, but he had also arterio-sclerosis, high blood pressure, and glycosuria. J. J. Thomas[12] gives three examples of hemiopia becoming permanent. There are also instances on record of permanent paralysis following migraine, but these are mostly in persons under 50. Most of the patients showed disease of the vessels, but others were young, with presumably healthy arteries. Such consequences of migraine seem to be so rare as to be of little practical importance, and do not especially occur after 50. In the uncommon form of migraine in which the attack is followed by a transitory paralysis of one limb, or even by a hemiplegia, there may be more reason to fear permanent paralysis. Elsewhere[13] I have recorded the case of a family of which many members suffered from this form of migraine through three generations, and since writing the account one of the patients has, at the age of 51, become permanently hemiplegic.

Headache in connexion with a contracted granular kidney may closely simulate migraine. Thus, a patient with well-marked signs of contracted

[6] Wiener Medicinische Wochenschrift, 1904, No. 15, p. 621.
[7] Turner: Allbutt and Rolleston's System of Medicine, vol. viii., p. 335.
[8] Loc. cit.
[9] Loc. cit.
[10] Text-book of Nervous Diseases, translated by Bruce, vol. i., p. 306.
[11] Journal of Nervous and Mental Diseases, vol. xxxii., 1905, p. 1.
[12] Ibid., vol. xxxiv., 1907, p. 153.
[13] Brit. Med. Jour., vol. i., 1910, p. 1534.

kidney of some years' duration first began to suffer at the age of 55 from attacks of headache exactly resembling migraine, with ocular prodromata in the left eye, in which there was commencing albuminuric retinitis. As migraine never occurs *de novo* late in life, no mistake in diagnosis should be possible, for though in some patients there may be an intermission for years careful inquiry will elicit a history of former attacks. On the other hand, I have come across several instances in which lifelong sufferers from migraine developed a granular kidney after 50, the headaches becoming more severe but retaining their original form.

An important question is whether migraine leads to epilepsy in later life. It is a matter of common observation that migraine and epilepsy not infrequently occur in different members of the same family, either in collaterals or in previous generations. The similarity of some features of the two diseases is also remarkable. The further assumption of anything like identity between them is, however, not justified. Occasionally a patient is subject to both affections.[14] Oppenheim states definitely that it has never been proved that one of these conditions may develop into the other. Personally, I have not met with migraine developing into epilepsy in later life.

Epilepsy.

It is well known that the frequency of epilepsy diminishes as life goes on, but it is also true that epilepsy may begin at any age. I cannot give extensive statistics, but of 100 consecutive out-patient cases 6 per cent. had their first fit after 50, and in 100 consecutive private patients 9 per cent. Especial care is necessary in the diagnosis of idiopathic epilepsy in later life to be sure that the case is not one of an epileptiform attack, symptomatic of some underlying disease. This especially applies to Jacksonian epilepsy, for after 50 localised epileptiform attacks from the partial closure of a diseased cerebral artery are not uncommon. As to direct heredity in cases of epilepsy of late onset, Gowers gives 26 per cent. in those which begin after 40, and Turner 10 per cent. in cases arising between 41 and 70. Finckh, however, puts the proportion as high as 66 per cent. In eight personal cases in which the onset was between 52 and 64 years there was a hereditary history in two only.

In late epilepsy men are more frequently affected than women. Idiopathic epilepsy between the ages of 50 and 70 comprises: (1) Cases in which the disease persists throughout life; (2) cases in which the patient suffered from fits in childhood or early life, and then was free for a number of years, with a subsequent reappearance late in life; and (3) those in which the onset is after 50.

The first occurrence of epileptiform fits after 50 years of age may be connected with the presence of arterio-sclerosis and a high blood pressure. These cases cannot therefore be brought into the category of idiopathic epilepsy. Whether the fits are due directly to the high blood pressure or to the toxæmia which produces it is a moot point, but as cases of hypertension are common after 50, and epileptic attacks rare, there is probably some other adjuvant factor in the causation. The attacks may be severe general epileptiform ones or those of minor epilepsy (petit mal). Some of these cases are undoubtedly due to a contracted granular kidney, but in others the kidney is not involved, and they cannot therefore be regarded as uræmic.

[14] Vide Sir W. Gowers, The Borderland of Epilepsy, London, 1907.

In late epilepsy, supervening at an age when the wear and tear of life has often produced changes in the blood-vessels, it would be anticipated that the strain on the cerebral circulation produced by a fit should sometimes lead to hæmorrhage. Of this I have seen two instances: one was in a life-long epileptic who at the age of 70 died of hæmorrhage from a cerebral artery which ruptured in the course of a fit. In the other case the first fit took place at the age of 60, others occurred between that age and 70, when he was left aphasic and hemiplegic after a fit.

Vertigo.

Vertigo is occasionally the chief symptom in an attack of late epilepsy, when the differential diagnosis from other possible causes is sometimes difficult, and especially so when epileptic attacks and aural vertigo coexist in the same patient. Thus, a man aged 47 had a sudden attack of severe vertigo which left him deaf in the left ear, and liable to attacks of vertigo with tinnitus; at 53 he began to suffer from fits in which he felt an indescribable feeling rising from the stomach, lost consciousness, and fell, hurting himself in falling. There was no memory of the attacks. Gowers gives several instances of this coincidence of aural vertigo and epilepsy.[15] It may be difficult to determine the nature of a single attack.

Vertigo is one of the common, and certainly one of the most distressing, nervous affections of later life. By far the most frequent form is aural vertigo. Next in frequency come the cases due to increased intracranial pressure. It is also met with over 50 as a symptom of atheroma of the cerebral vessels, in stenosis of the aortic valves, in granular kidney, in cerebral tumours, and in neurasthenia. In a few instances an association with migraine, probably accidental, was present. It occurred in this way. The patients were between 50 and 60, they had suffered from typical attacks of migraine with ocular symptoms which ceased at or before the age of 50, and then at about 55 began to be affected with severe aural vertigo. Vertigo is a rare premonitory symptom of migraine.

The form of vertigo associated with hypertension, sometimes an early symptom of contracted granular kidney, is worse on movement, and apt to occur on getting up in the morning; the attacks are often attended by severe vomiting, which may persist for some time after the vertigo has gone. Consciousness is not affected. In one case with frequent attacks of vertigo and vomiting during two years, often lasting for two days at a time, hæmorrhage into the pons Varolii, with paralysis of the third, fifth, sixth, and seventh nerves, subsequently occurred.

Hysteria.

The subject of hysteria is so vast, and there is so much difference of opinion as to what should or should not be included under it, that it is a difficult one to enter upon. Moreover, any extended notice of it here is rendered unnecessary because it was very ably treated by Professor T. R. Glynn in his Bradshaw lecture of 1913.[16] The sufferers from hysteria generally obtain some mitigation of their disorders in later life. After possibly an aggravation of their troubles during the climacteric, they experience a great improvement of health, to their own relief, and still more to that of their family. In exceptional cases hysterical manifestations persist in the same or in different forms even into old age.

[15] Loc. cit.

[16] THE LANCET, Nov. 8th, 1913, p. 1303.

The more severe hysterical affections are undoubtedly uncommon after 50. They may occasionally appear in persons who suffered from hysteria before. Because severe hysteria is uncommon in later life errors of diagnosis may be made. If the patient is a male, the true nature of his complaint is still more likely to be mistaken. Hysterical mental disorders and fits are most uncommon after 55, and in the presence of a presumed case it is necessary to bear in mind Dr. J. A. Ormerod's warning to exclude alcoholism. I have once seen a severe hysterical fit in a woman over 55, which was followed by hysterical hemiplegia, and due to the shock of her mother's sudden death.

Hysterical paralysis and contractures occur rather more frequently. I can recall two cases of hysterical paraplegia in men; both were aged 64. Under appropriate treatment they made a complete recovery. Two instances of hysterical contracture of the leg in women, aged 53 and 51 respectively, are of interest because in each case there was a possible source of auto-suggestion; for one patient was a nurse who had chiefly to do with paralytic cases, and the other lived with a sister whose knee was permanently contracted after an accident. Both recovered after removal to hospital.

Neurasthenia.

Neurasthenia cannot be regarded as a disease of later life, as the large majority of cases occur between the ages of 25 and 50. Many neurasthenics as they reach later life, though perhaps never becoming robust, yet arrive at a measure of health and freedom from morbid anxieties which has been denied them for many years. At the same time neurasthenia, though not frequent, may occur after 50 up to old age. The symptoms present no special feature except, perhaps, that vertigo is relatively more frequent and troublesome, that loss of memory may be a pronounced symptom, and morbid fears, if present, often take the form either of fear of paralysis or of sudden death. The diagnosis of neurasthenia, always one of exclusion, requires especial care in later life, because, with symptoms resembling those of ordinary neurasthenia, it is often found that the patient has arterio-sclerosis with abnormally high blood pressure, or early signs of a granular kidney, or that the symptoms produced are due to changes in the nutrition of the brain due to disease of vessels. Such lesions exclude neurasthenia.

With regard to the traumatic neuroses, these are apt to affect persons after 50 very severely as the result of an accident, and to take the form of neurasthenia rather than of some more strictly hysterical manifestation. Here again the matter is confused by the frequent pre-existence of chronic disease of the vessels, heart or kidney, so that it may be difficult after an accident to apportion correctly the share of the illness due to nervous shock and that due to antecedent disease. The difficulty is increased by the common experience that from the gradual onset of these infirmities of advancing age the patient was unconscious of them before the accident. In medico-legal cases of elderly workmen claiming compensation after an accident—and it is only human nature for them to attribute all their trouble to it—a just decision is often extremely hard. Working men over 60, after a life of toil, generally show signs of vascular or cardio-vascular degenerative changes; they may go on working so long as no accident or acute illness occurs, but they are in an unstable equilibrium, and if unfortunate enough to meet with a bad accident they are likely to be permanently incapacitated. The prognosis as to return to full health in traumatic neurasthenia in persons over 55 is, in my experience, not good.

Neuralgia.

Between 50 and 70 true neuralgia is not an infrequent affliction. Gout, arterio-sclerosis, various cachexias, and presenile disturbances of nutrition are the chief causes. The senile and arterio-sclerotic forms chiefly affect the fifth nerve. Neuralgia may be a complication of a granular kidney, and in several cases under my care affected the occipital nerve. Occipital pain, not definite neuralgia, is sometimes a symptom of uræmia. Lapinsky has traced the neuralgia of nephritis to disease of the vessels of the nerves.

A most severe form of neuralgia in the elderly is that which follows herpes zoster. A sufferer from herpes in later life rarely escapes without subsequent neuralgia, often lasting for months. In younger patients it is quite exceptional for there to be much pain, and when present it stops with the healing of the eruption. Evans [17] suggests that this depends on a difference of cause. He thinks that a large majority of cases of herpes zoster are microbic in origin, and regards this as the essential form of the disease to which he attributes most cases occurring in children, whilst those which occur after 40 are due to causes yet undetermined. Evans states that half his cases were under 14 years of age and one-sixth over the age of 40. Head states that of 378 cases, 29 were over 40 years of age.

Paralysis agitans, though not a very common disease, is pre-eminently one of the period of life between 50 and 70 years. Its main incidence is narrower and lies between 50 and 65. Sir W. Gowers [18] out of 236 cases states that the onset in 51 was between 40 and 49, in 100 from 50–59, and in 60 from 60–69, altogether 211 cases. After 70 there were 10 cases. Stuart Hart [19] in 219 cases found the age of onset to be between 40–50 in 54, between 50–60 in 88, between 60–70 in 42, and none after that age. Onset over 65 is thus uncommon. The disease is therefore one of the presenile period. Its cause remains mysterious, and it is not especially associated with vascular degeneration or other bodily changes incidental to this age. Of exciting causes the most frequent is depressing emotion or sudden, profound emotional disturbance, and the other is a traumatism. In Dr. Hart's cases 27 were distinctly due to traumatism and 27 less certainly due to this cause.

CONCLUDING REMARKS.

If from the foregoing considerations we try to get a general view of the nervous affections of the sixth and seventh decades it is clear that many nervous diseases do not occur at all, others are modified in their symptoms and course, and a few especially affect this time of life. Except for one important group of diseases it comes out more favourably in comparison with other ages than one would perhaps have expected.

It is hardly necessary to say that the lesions of the brain due to vascular disease form the exception, and although, strictly speaking, these are not primarily nervous diseases, yet from the

[17] British Journal of Dermatology, vol. xvii., 1905, p. 199.
[18] Allbutt and Rolleston's System of Medicine, vol. viii., p. 475.
[19] Journal of Nervous and Mental Diseases, vol. xxxi., 1904, p. 177.

practical point of view they are by far the most important of the nervous affections of this period, because of the great frequency of cerebral hæmorrhage and thrombosis after 50, and of their disastrous effects both as to life itself, and if that is preserved, as to future usefulness. The frequency alone of such serious diseases marks them as first in importance. Cerebral hæmorrhage, thrombosis, and hemiplegia afford a very large proportion of the sufferers between 50 and 70 from all the diseases considered in this lecture. Further, it has been shown that disease of the vessels materially affects the course of most nervous affections during this period. Since nervous tissue once destroyed cannot be restored the prevention of vascular diseases becomes of paramount importance. How this is to be accomplished I cannot consider at length. Often the tendency to vascular disease is hereditary and beyond our powers to remedy, but apart from such cases it is certain that the chief measures to prevent degenerative changes in the circulatory system are abstemiousness in eating and drinking, care to keep efficient the organs of digestion and excretion, and regular physical exercise. The simple life may prevent, and certainly mitigates, the progress of vascular decay.

Again, the granular kidney, a disease for which, unfortunately, our treatment is merely palliative and not preventive, is the cause of a large proportion of cases of cerebral hæmorrhage. In the course of this lecture its importance as a cause of various other nervous affections has become evident.

Whilst on the one hand over-feeding has to be avoided, on the other excessive work with insufficient nutrition is also a danger. Exhaustion, over-fatigue, or over-strain are doubtless causes of such diseases as the muscular atrophies in later life. The need for moderation of former activities, both mental and physical, is a lesson that many learn too late. Defect of nutrition again may be local in the nervous system from defective supply of blood due to localised arterial disease.

Turning to those affections more purely of nervous origin, the period from 50 to 70 compares favourably with that of either childhood and adolescence or the age from 25 to 50. In both the latter periods of life falls the incidence of the nervous diseases due to infections and intoxications from which the age after 50 is mostly exempt. The main period of onset of the hereditary and familial diseases, those included under Gowers's designation of abiotrophy, occurs in childhood and adolescence, whilst from 20 to 50, together with some abiotrophic diseases whose onset is late, the nervous affections due to syphilis and alcohol are rife. We have seen that after 50 the chances of the occurrence of cerebro-spinal syphilis are comparatively slight.

Lastly, the purely nervous diseases which are especially characteristic of this period of life are paralysis agitans, some of the combined scleroses of the spinal cord, and certain muscular atrophies of central origin. It is possible that some of these affections owe their origin to that process of premature senescence or defective vital endurance of certain neuronic systems known as abiotrophy, and that this pathological process may occur at any age. Paralysis agitans especially, in its narrow age incidence, uniformity of symptoms, progressive character, and occasional familial tendency, suggests this mode of origin.

GUNSHOT INJURIES OF THE PERIPHERAL NERVES.[1]

BY WILFRED HARRIS, M.D. CANTAB., F.R.C.P. LOND.,

PHYSICIAN TO ST. MARY'S HOSPITAL, LONDON, AND TO THE HOSPITAL FOR EPILEPSY AND PARALYSIS, MAIDA VALE; CAPTAIN, R.A.M.C. (T.), 3RD LONDON GENERAL HOSPITAL.

THE problems which arise in cases of gunshot injury of the peripheral nerves may be divided under two main headings: (1) diagnosis and accurate localisation of the injured nerves; and (2) the degree and kind of injury, the prognosis, and the decision as to whether operation is advisable in order to free the nerve from scar-tissue, or for suturing a partially divided or completely severed nerve. Although there is nothing new in the gunshot injuries of nerves in this war, yet the large number of cases available for examination has impressed upon me at any rate several facts in the clinical conditions of severely injured nerves, of which more anon, and incidentally has afforded good opportunities of demonstrating the areas of sensation supplied by the various peripheral nerves.

Diagnosis and Accurate Localisation of the Injured Nerves.

The following two cases, superficially alike, yet in the one case a severe injury of the fifth and sixth cervical nerves, in the other very slight bruising only of these nerves, combined with hysterical paralysis of the rest of the upper extremity, illustrate the problems that are continually being set to the surgeon, and how necessary a thorough neurological examination of the damaged limb is before any surgical exploration for the suture of nerves is undertaken.

Two youths, one a corporal aged 17½, the other a lieutenant aged 21, both received on Sept. 25th last almost identical injuries in front of Loos during the advance, in each case a rifle bullet striking through the side of the neck, with exit through the scapula of the same side. In each case the arm fell helpless and numb to the side at once. Though the paralysis remained complete in the case of the lieutenant a fortnight later, electrical examination at once demonstrated in his case that no nerve was badly injured, the faradic reactions of all the muscles of the upper extremity being perfectly normal, and suggestion, combined with the faradic stimulation, in a few minutes restored very fair power to the limb. There was very little anæsthesia in this case, though tinglings and prickling pains were complained of down the outside of the arm and forearm into the thumb and index finger. In the case of the corporal, however, though there was complete Erb's paralysis—namely, of the deltoid, spinati, biceps, brachialis anticus, and supinator longus—yet there was no weakness in the triceps or of any muscle of the forearm and hand. Electrical testing showed complete reaction of degeneration in the above-mentioned paralysed muscles, and a chart of the sensation showed well-marked loss to pinprick and touch along the radial border of the arm and hand, the whole indicating a severe injury of the fifth and sixth cervical nerves. (Fig. 1.)

With this second case may be compared the following more difficult problem. A man, aged 28, was wounded in the second battle of Ypres on May 8th and taken prisoner. He received two

[1] A paper read before the Medical Society of London on Oct. 25th, 1915

shrapnel wounds on the head, being unconscious for a few days, with right hemiplegia and aphasia, recovering of that completely. He also received a bullet wound through the right side of his neck behind the sterno-mastoid, and another through the

FIG. 1.

Three gradations of shading are employed to illustrate the varying depth of the anæsthesia, the darkest indicating complete loss to firm pressure, the cross hatching showing analgesia to pin-prick, and the lightest shading merely diminution to pin-prick and light touch. The stippling, as in Figs. 27-29, indicates areas of hyperalgesia.

lower right arm just above the elbow on the inner side. He was returned as a prisoner from Germany on August 25th, and on examination I found typical paralysis and wasting of the right trapezius, also of the spinati, most of the deltoid, the biceps, brachialis anticus, and supinator longus. The triceps and extensors of the wrist and fingers were normal, but the flexors of the fingers and thumb were weak, only the flexor carpi ulnaris and interossei being normal.

Charting the sensation showed analgesia (Fig. 2) on the outside of the arm and forearm, and also of the median distribution on the hand. Clearly all this had nothing to do with his head injury. The flexor paralysis and analgesia of the hand were due to a median nerve injury by the bullet wound at the elbow, while the bullet wound in the neck had evidently injured his fifth and sixth cervical nerves (Erb's palsy) and also damaged the spinal accessory nerve.

Hysterical Phenomena Complicating Organic Injury.

In our examination of a case of supposed nerve injury with a view to an exact diagnosis, neither apparent muscular paralysis nor anæsthesia of a limb is to be accepted as genuine and due to actual injury of a nerve without proof or further corroboration. It is the commonest experience to find cases, as in the instance of the lieutenant quoted above, where the shock of the injury has induced a functional paralysis of a part or the whole of a limb, in addition to the local muscular paralysis due directly to any injured nerve. Hysterical phenomena may also appear in the form of contractures, or hyperæsthesia, or as hemiplegia, paraplegia, monoplegia, blindness, deafness, muteness, &c. Hysterical paralysis or anæsthesia will never follow the anatomical distribution of a peripheral nerve, and in hysterical anæsthesia the skin is moist and sweaty, while in severe nerve injuries the skin is cold, dry, and scaly, and wasting of the finger pads takes place. Glossy skin occurs only in a chronic irritant neuritis.

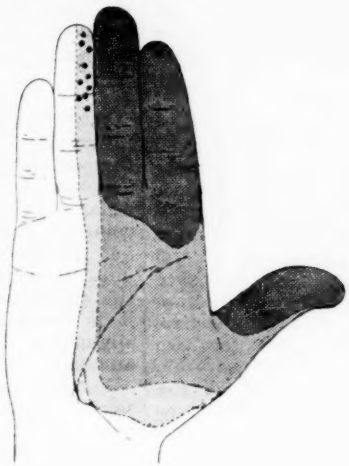
One more instance may perhaps with advantage be given of the common combination of hysterical symptoms and organic paralysis. A young Australian at Gallipoli was shot through the lower forearm just above the wrist, fracturing the radius. The wound healed normally, but when seen six weeks later at Wandsworth he was unable to move the hand or fingers at all, the latter being in the well-known contracture position resembling tetany. There was also total anæsthesia of the whole hand up to the wrist, which, however, was quickly dissipated by the use of strong faradism and suggestion, leaving a residual anæsthesia characteristic of complete

FIG. 2.

median-nerve paralysis. Electrical testing confirmed the diagnosis of median-nerve injury, as well-marked reaction of degeneration was present in the muscles of the thenar eminence, while the interossei and hypothenar muscles, as well as all the muscles in the forearm, reacted perfectly to

faradism. The diagnosis, then, in such a case as this was arrived at as follows. Firstly, the tetanoid position of the hand suggested hysterical contracture. Secondly, the total anæsthesia of the whole hand, back and front, if not partly hysterical, and unless due to anæsthetic leprosy or syringomyelia, could only be explained by a severe injury of the median, ulnar, and radial nerves, which was impossible with one bullet wound just above the wrist. Thirdly, the normal faradic reactions of the interossei showed that the ulnar nerve was not injured. Fourthly, the skin over the median nerve distribution was thin and sweaty, and the pulps of the thumb and index finger were wasted. Now the fact that the skin was sweaty in the distribution of the paralysed nerve indicated a partial lesion only, or commencing recovery, though sufficient time had not elapsed from the date of the wound for such a stage of recovery to be reached. The presence, too, on electrical testing, of well-marked sluggish contractions to galvanism in the abductor and opponens pollicis, which had lost their faradic irritability, was suggestive of a partial lesion only of the nerve, as in cases of complete severance of a motor nerve in a limb the galvanic reactions disappear or become extremely difficult to obtain, requiring reversals of strong current, within a few weeks of the injury. The surgeon in charge of the case cut down on the nerve and found it involved in scar, and then cut a short piece out and sutured the ends together. The charts of the anæsthesia (Figs. 3 and 4) shown here were actually taken 13 days after the operation, and show an interesting

FIG. 3.



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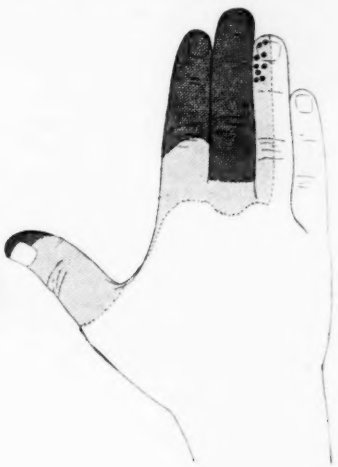
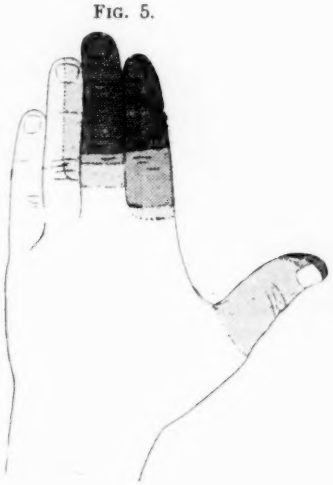


FIG. 5.



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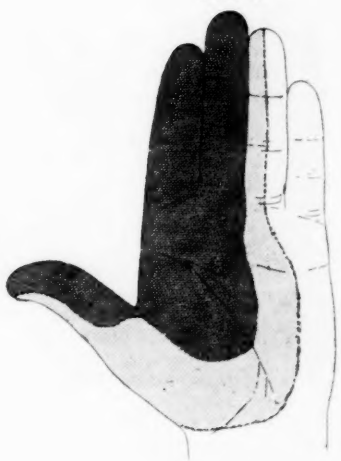

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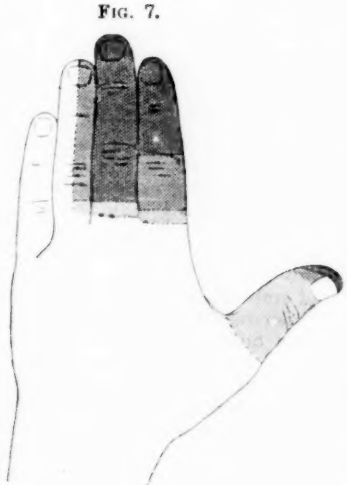

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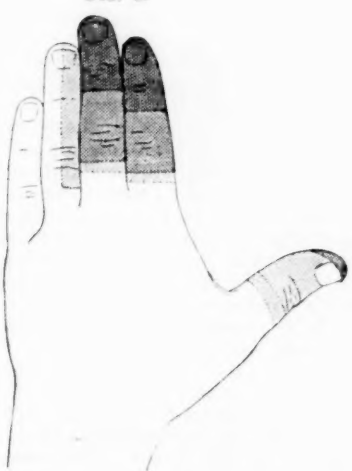
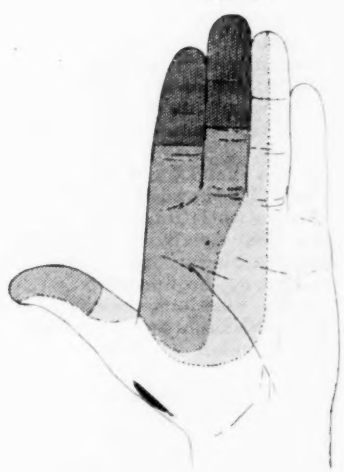


FIG. 9.



evidence of commencing recovery in the hyperalgesia appearing on the radial side of the ring finger to a pinprick or scratch. As a rule, improvement in sensation after primary suture of a nerve has been stated to commence in from two to three months.

Median Nerve Paralysis.

Figs. 5, 6, 7, 8, and 9 illustrate the improvement in a case of suture of the median nerve, seven weeks after operation. The first two charts were taken 15 days after the bullet injury in the upper arm and are fairly characteristic of complete median paralysis, and reaction of degeneration was well marked in the thenar eminence and flexors in the forearm. In this case the skin was dry and never sweated, and the epithelium over the median-nerve skin distribution became thick and scaly, peeling off in flakes for two months. The nerve was clearly more severely damaged than in the last case in which the anæsthetic skin was sweaty, and operation was confidently advised for a possibly severed nerve. A hard fibrous scar was found in the nerve, almost completely interrupting the nerve fibres, and this was cut out by Mr. W. S. Handley, the nerve being cut completely across and then sutured. Chart 7, 23 days later, shows more extensive anæsthesia than before the operation, and illustrates a point I have noticed in several median-nerve injuries—diminution to touch and prick on the dorsum of the thumb, as far back as the metacarpo-phalangeal joint. In Chart 8, taken 26 days later, or seven weeks after the suture of the nerve, the improvement in sensation is obvious, pinprick being now perceptible on the outer half of the ring finger, and the area of total anæsthesia on the middle finger shrinking towards the periphery. Chart 6 shows the anæsthetic area on the palm before operation and Chart 9 the same area seven weeks after operation, showing the large area on the palm and pad of the thumb over which firm pressure is now perceptible. Motor power is always much later in recovery, roughly taking as many months as sensation takes weeks to show commencing improvement.

The next two charts (10 and 11) illustrate the improvement in sensation seven days after operation for suturing an ulnar nerve and freeing the median from encircling scar-tissue. Wounded by shrapnel bullet through the left upper arm, Chart 10 shows the anæsthesia on the dorsum of the hand three months later, the extent and character of the anæsthesia on the ring finger indicating that the median nerve was partially damaged in addition to the ulnar. There is never complete loss to pressure on the inner half of the ring finger in ulnar nerve lesions, the complete loss being limited to the little finger and the ulnar border of the hand. A week only after the operation Chart 11 shows the marked improvement in the median sensation, while the area of total loss on the ulnar side of the hand is also shrinking towards the periphery. There was very little power of flexion of the fingers or wrist, with very defective faradic reactions, indicating that the median-nerve muscular supply was more affected than the sensory fibres, which is usually the case. Consequently I consider the sensation charts of more value in the diagnosis of the severity of a nerve injury than total loss of muscular power and loss of the faradic reactions. In complete median or ulnar nerve lesions there is total loss of sensation on the distal phalanges, the hardest squeeze not being felt at all. In less complete damage of the nerve firm pressure is felt, causing a dull sense of aching, but pinprick will be felt only as pressure. In the slighter forms of damage there will be no complete loss to prick, but diminution of sharpness and also of appreciation of light touch.

Methods of Testing Sensation.

In the routine examination of cases of nerve injury that I see at Wandsworth at the 3rd London General Hospital there is no time for elaborate exploration by von Frey's hair-æsthesiometer and other delicate methods of testing sensation with compass points, hot and cold test-tubes, vibration, &c. By the rougher methods I am using I find it is quite possible to give a fairly accurate opinion on the condition of a peripheral nerve, as to whether it is completely destroyed, partially cut, or only slightly involved in scar-tissue, and as to whether an operation on the nerve is advisable or not.

For testing purposes I use a steel pin for testing sensation for prick and scratch, a small camel-hair brush for tactile sense, a blunt pencil point for medium pressure, and a hard squeeze with my fingers for testing extreme sensibility to pressure. For practical testing purposes it seems to me that tactile perception of cotton-wool or a light brush, discrimination of compass points, pin-prick, heat and cold, medium and deep pressure, may all be considered as tests for different degrees of conductivity of the nerve, and not different forms of conductivity by special systems of fibres, as in Head's hypothesis of protopathic and epicritic systems, and I am certainly more inclined to follow Trotter and Morriston Davies in their views on sensory nerve conduction. This opens up, however, too extensive a subject for further discussion now.

Position of the Sensory Fibres in the Median Nerve.

To return to the median nerve, Chart 12, taken from a case of complete median-nerve division and re-suture, shows well a point I referred to just now, anæsthesia on the dorsum of the thumb. In this case loss to firm pressure extended over more than half of the distal phalanx, and distinct diminution to prick and light touch was noticeable nearly up to the metacarpo-phalangeal joint. On the other fingers this may be considered a typical chart of complete median-nerve paralysis. In some cases the total anæsthesia on the middle finger reaches even further towards the base of the finger as in Chart 13, from a bullet wound in the upper arm, though in this case the loss of sensation on the dorsum of the index was less complete, pressure being perceived, though a pinprick was not recognised as such.

Chart 14 shows the palmar anæsthesia in this case, where we note the total anæsthesia on the palmar aspect of the index finger as well as on the middle finger and palm. A hard squeeze on the pulp of the thumb was also felt, though there was total anæsthesia on the middle finger, back and front, on the palm of the index and outer part of hand. On these grounds I diagnosed a nerve partially cut through and embedded in scar-tissue, and advised operation. This condition Mr. C. A. Pannett found, the anterior and outer part of the median nerve having been cut. I wish to draw attention to the fact that the dorsal bundles of the nerve were not cut, and that the anæsthesia on the dorsum of the index was less deep than on the palmar aspect. I think it is highly probable that the nerve fibres which supply the posterior or dorsal areas of skin run in the dorsal bundles of the nerve.

FIG. 10.

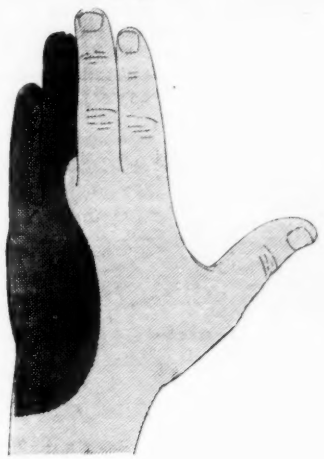


FIG. 11.

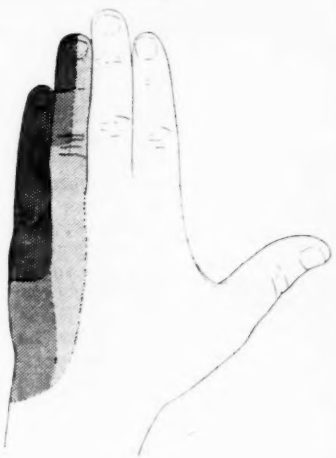


FIG. 12.

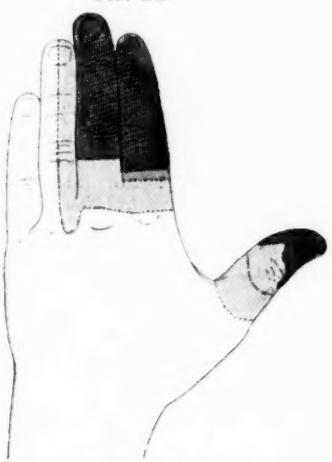
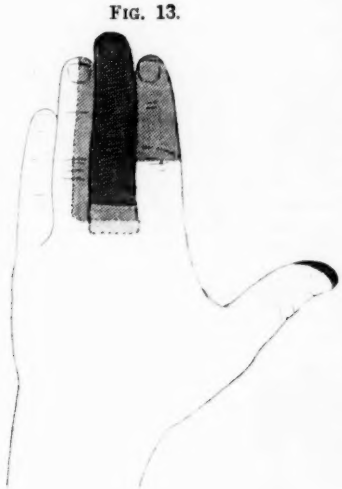


FIG. 13.



Another case illustrating this point is the following. Chart 15 is taken from a man injured at Gallipoli on August 9th by a rifle bullet through the inner upper arm. With the exception of the flexor carpi radialis there were complete motor paralysis and reaction of degeneration of the median supply. The anæsthesia on the dorsum of the hand is fairly characteristic of severe median injury, though not quite complete on the middle and ring fingers. On the palmar aspect of the hand Chart 16 shows very partial anæsthesia only, with pressure well felt on the palmar aspect of the middle finger. Comparing this with the total anæsthesia of the index and dorsum of the middle finger, together with the extensive muscular paralysis, I diagnosed confidently that the median nerve had been partially cut through on its dorsal side, the nerve being also embedded in scar. This was precisely what Lieutenant-Colonel G. A. Syme found at the operation, a strand of about a quarter of the nerve being apparently uninjured on the anterior aspect, the remaining three-quarters of the dorsal side of the nerve being completely cut through and embedded in dense

FIG. 17.

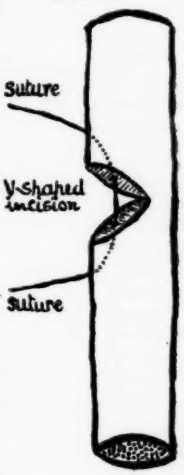
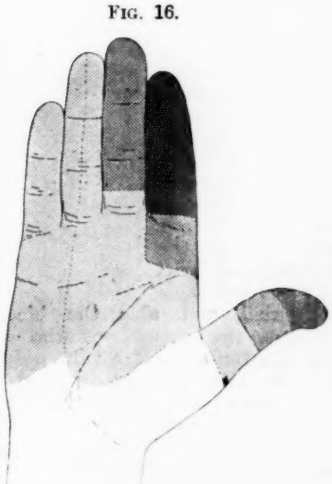


FIG. 14.

FIG. 15.

FIG. 16.



scar. If I trespass for a moment on the surgical aspect of such a case, I think it is highly important never to cut such a nerve across, but by a V-shaped incision to freshen the cut surfaces after clearing away the scar-tissue, and then suture behind the uncut portion. (Fig. 17.)

Ulnar Nerve Paralysis.

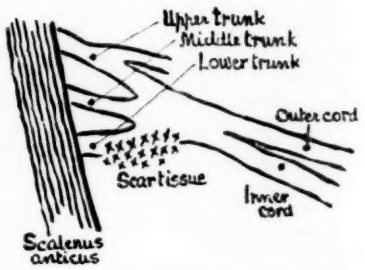
The next four charts illustrate two cases of divided ulnar nerves, the anæsthesia in the second case extending unusually far across the hand. Charts 18 and 19 are taken from a case of complete severance of both ulnar and median nerves by a bullet wound four months previously through the left upper arm. In this case the artery and veins had also been injured, and there was no pulse at the wrist. The hand was more blue and cold for this reason than is usual. Although 16 weeks had elapsed since the injury, there was full reaction of degeneration present in the flexors in the forearm, quite fair contractions being evoked by reversals of 5 ma. of galvanism. For this reason I expected to find some evidences of continuity of both nerves, but this was not the case.

Brachial Plexus Injuries.

Bullet wounds through the axilla and neck, above and below the clavicle, have provided numerous instances of brachial plexus injuries. An interesting point was brought out by one such injury of the posterior cord, the bullet grazing the upper border of the clavicle. There was complete dropped wrist and palsy of the triceps, deltoid, and latissimus, with reaction of degeneration present in all these muscles. Yet only the branch from 5–6 C. to the posterior cord was severed by the bullet, the rest of the posterior cord entirely escaping. Suture of the cut branch was performed by Mr. Warren Low on Feb. 12th, 1915, and an excellent recovery ensued, fair extension of wrist and fingers, and abduction of the shoulder reappearing after 16 weeks. This early motor recovery may be accounted for by the fact that only a part of the posterior cord had been cut.

Charts 20 and 22 illustrate injury to the inner and outer cords by a bullet entering the chest behind at the level of the fifth dorsal vertebra, with exit 1 inch above the clavicle, 2½ inches left of mid-line. The whole of the left pectoral muscle was atrophied, and also the biceps and brachialis anticus, the flexors of the wrist and fingers, and hand muscles. All the posterior cord muscles, deltoid, latissimus, triceps, and extensors of wrist and fingers were normal. In spite of the atrophy of the biceps and brachialis anticus, flexion of the forearm was quite fairly performed by strong contraction of the supinator longus. Owing to this action of the supinator longus, paralysis of the biceps in injuries of the musculo-cutaneous nerve may be overlooked. The grouping of the muscular paralysis in this case was characteristic of a lesion of the inner and outer cords, and the sensory charts confirmed this. Operation by Mr. V. Z. Cope on Oct. 5th found these two nerve cords glued together by fibrous tissue (Chart 21), which was very firm and dense below. This was all dissected off. The improvement was immediate, his pain having nearly disappeared next day, and three days later he could feel pressure on the inner side of the hand. Improvement has since been steady. (See Chart 22.)

FIG. 21.

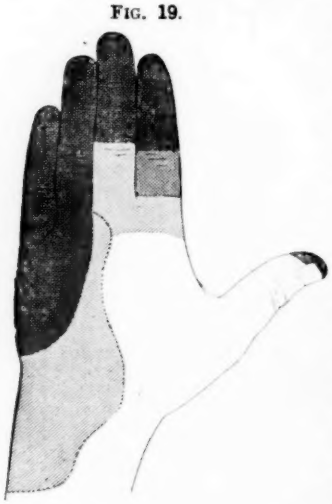


Lower Extremity.

Sciatic and anterior crural nerve injuries are less common than those of the upper extremity and are usually incomplete, the external popliteal nerve suffering most. Charts 23, 24, and 25 illustrate the anæsthesia that may be met with in cases of complete paralysis of the sciatic nerve, when all movements of the foot will be completely lost. Note the area of supply of the internal saphenous nerve on the inside of the leg and ankle. Being a branch of the anterior crural this area preserves normal sensation. The Achilles jerk will be lost, but the knee-jerk is unaltered, and reaction of degeneration will be found in all the muscles below the knee. Chart 25 is taken from a man who was shot through the pelvis diagonally, injuring the left lumbo-sacral cord. This trunk was exposed by Sir J. Bland-Sutton, who divided the nerve and then sutured it. The chart was taken subsequently, the loss of sensation on the sole and back of leg having increased.

FIG. 18.

FIG. 19.



Injury of the posterior tibial nerve if complete causes total anæsthesia of the whole sole of the foot, being sharply limited. Chart 26 is taken from a man who was wounded by a shrapnel bullet through the lower part of the leg on June 16th, breaking the fibula. The gastrocnemius escaped injury, though flexion of the toes is very poor. This man cannot feel any difference whether his foot is standing on a rug or on a cold hard floor. As this condition still persists four months after injury operation to free the nerve from scar-tissue is certainly advisable. (This was done by

FIG. 20.

FIG. 22.

FIG. 23.

FIG. 24

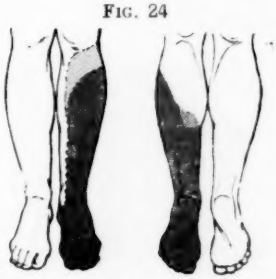
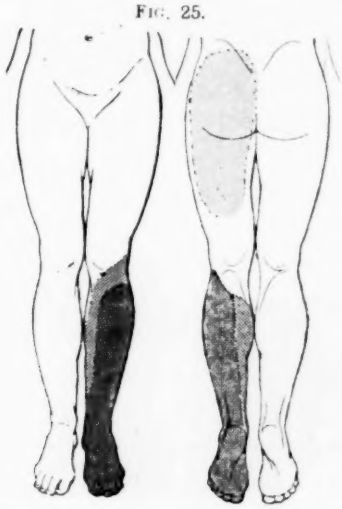


FIG. 25.



Sir J. Bland-Sutton on Oct. 29th, the posterior tibial nerve being found completely divided, and the ends then freshened and sutured. Three days later, on Nov. 1st, there was undoubted recovery of appreciation of prick on the ball of the foot and pads of the middle toes, though previously the whole sole of the foot was completely insensitive to prick and even to deep pressure.)

FIG. 26.

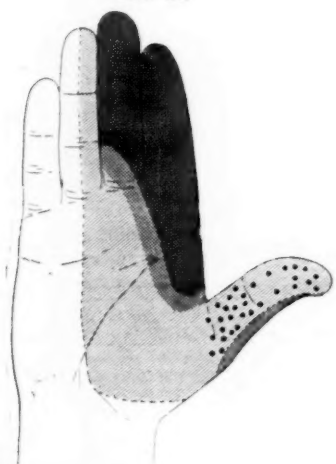
FIG. 28.

Hyperæsthesia and Hyperalgesia.

This sign may be divided into five distinct forms which it is important to distinguish:—

(*a*) *Hysterical hyperæsthesia.*—This may or may not accompany a nerve injury. It is to be recognised by the usual method of diagnosing hysterical phenomena—namely, inconsistency and improbability. These cases are fairly common. I have seen several on the scalp, as well as the limbs. Brisk treatment with faradism and insistence to the patient that it will cure him if he bears it only for a few seconds is usually quite successful in dissipating this variety.

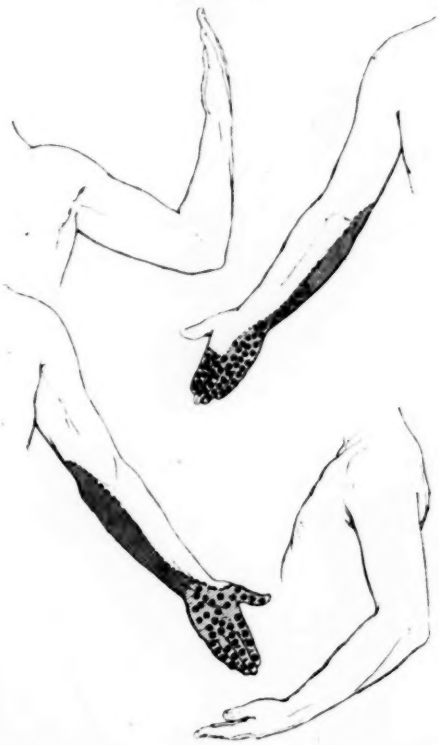
FIG. 27.



(*b*) *Hyperæsthesia during the recovery stage of an injured nerve or following suture.*—Chart 27 is taken from a median-nerve injury by a bullet causing a scar in the nerve, with slight bulbous formation. The soreness of the thumb developed three months after the injury while the sensation was improving. This type is not painful unless the part is touched or rubbed.

(*c*) *Hyperæsthesia due to scarring involving nerve.*—This also is of late onset, but causes spontaneous constant pain, in addition to intense hyperæsthesia if touched or scratched. There will be diminution of tactile sensation to light brush, which does not set up hyperæsthesia, deeper pressure, such as a scratch, being required. Chart 28 is taken from a case of injury of the posterior tibial, in which the hypersensitiveness developed a month after the injury, and is therefore unlikely to be due to the contact of a foreign body. This should be watched for a time and may recover if left alone. Chart 20 also illustrated severe hyperæsthesia to any form of pressure, in the case of bullet injury of the inner and outer cords already described. The whole area over the wasted pectoral muscle was intensely sensitive to pressure, especially at a point one inch above the nipple, pressure here causing darting pain down into the fingers of the left arm and also down the left side to the groin. This was accompanied by constant severe aching pain in the hand, and developed gradually after the injury. It was completely cured within three days by the operation of dissecting the fibrous scar-tissue off the inner and outer cords. It should be remembered that the inner and outer cords lie above the clavicle close beside each other, not widely separated as anatomy text-book diagrams frequently show them.

FIG. 29.



(*d*) *Hyperæsthesia as a referred pain and sensitiveness of the skin due to a distant visceral neuralgia, such as dental neuralgia, or frontal sinus congestion, glaucoma, &c.*—This variety, so well described by Head, need not detain us now.

(*e*) *Hyperæsthesia due to direct irritation of a nerve by a foreign body.*—This type is immediate in onset, dating from the time or very soon after the actual wound. Chart 29 is taken from a man wounded by a rifle bullet on August 6th last, through the anterior portion of the axilla. The pain at once was intense, causing the arm to shake and quiver, and necessitating three injections of morphia in the first five hours. He is analgesic

over the internal cutaneous supply, but there is very little, if any, loss over the area of the median and ulnar nerves which is intensely hyperalgesic to any pressure or scratch, shaking, or even to any rasping or scraping noises near him. This pain has continued unaltered for two and a half months. It is possible that only one of the nerves, such as the ulnar alone, and not the median, is irritated, as in such a case the hyperalgesic area is much larger than the area of the cutaneous supply of the affected nerve. No doubt in such a case as this the nerve is directly irritated by contact with a foreign body such as a piece of clothing, portion of a bullet, spicule of bone, &c. Operation is advisable in these cases to explore the track of the bullet. Treatment by massage of the tender area, as was ordered for this man in another hospital, is not only useless but sheer cruelty.

Operation by Captain Cope on Oct. 29th disclosed a large bulb on the internal cutaneous nerve and light scar tissue around the ulnar nerve. The bulb was cut out, the ends were sutured, and the scar tissue was cleaned off. Next day the hyperalgesia had disappeared, though it has recurred for short intervals since.

Summary.

The following is a summary of the points I would make:—

1. The importance of an accurate history of the details of the wound or wounds, and of the immediate effects.

2. A careful and methodical examination of the paralysis, both motor and sensory, is necessary to determine whether it matches with the known anatomical distribution of one or more nerves, or of a portion of a plexus, or whether it resembles the phenomena produced in hysteria.

3. Careful charts of the sensory loss are more important than the presence of complete muscular paralysis, with reaction of degeneration, in estimating the severity of the injury of a mixed nerve.

4. The various stimuli used in testing by hard or light pressure, pin-prick, scratch, camel-hair brush or cotton-wool, are tests of different degrees of conductivity of the nerve, not of different systems of fibres. Hard pressure will still be perceived except in total interruption of the nerve conductivity by actual division or by its inclusion in dense scar.

5. Commencing recovery of sensation may in some cases be observed within a few days only of secondary suture of the nerve. Variations, however, in the sensibility must be allowed for, as this may vary from day to day within narrow limits, or according as the limb is warm or cold.

Wimpole-street, W.

CHELSEA HOSPITAL FOR WOMEN: APPEAL FOR BUILDING FUND.—An appeal has been received from Lord Londonderry, President of the Chelsea Hospital for Women, and Lady Ilchester, President of the Ladies' Committee, calling attention to the urgent need of funds for the completion of the new hospital and the erection of its nurses' home. The contract for the new buildings was entered into before the war broke out, so that all the advantage of pre-war prices has been gained, but a sum of £35,000 is still required. The facilities given at the hospital for the admission of the wives and near relations of soldiers and sailors are proving a great boon, and justify an appeal at a time when so many special claims are being made in connexion with the war. Contributions may be sent to Holland House, Kensington, W.

GUNSHOT INJURIES TO PERIPHERAL NERVES.[1]

BY R. H. JOCELYN SWAN, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE CANCER HOSPITAL, S.W., AND SENIOR SURGEON TO THE ROYAL HERBERT HOSPITAL, WOOLWICH (R.A.M.C.).

DURING my work as surgeon to the Royal Herbert Hospital in the last 13 months there have been under my personal care 63 cases of gunshot injury to peripheral nerves, and for the purposes of this communication I have tabulated them.

Of these cases, 38 were operated on, involving the exploration of 41 individual nerves, for in 3 cases the injury involved two distinct nerves. Of the 25 cases not operated upon, 6 refused any operative treatment for conditions in which it was practically certain that a nerve was badly injured; in 3 it was deemed inadvisable to attempt any operation; and in 4 cases operation has been deferred until such time as the wounds made by the bullet have healed. In the remaining 12 cases gradual improvement and recovery to function returned after an interval varying from 2 to 24 weeks after the injury.

Table of Peripheral Nerves Injured.

Nerve.	Operation cases.			Non-operation cases.				Totals.
	No.	Complete division.	Embedded in scar.	Nerve concussion.	Waiting operation.	Refused.	Not advisable.	
Sciatic	5	1	4*	2	—	—	—	7
External popliteal ...	3	1	2	—	—	—	—	3
Internal popliteal ...	0	—	—	—	—	—	1	1
Sacral nerves	2	2	—	—	—	—	1	3
Lumbar plexus	0	—	—	—	—	—	1	1
Median	6	3	3	3	1	—	—	10
Ulnar	10	4	6†	2	—	3	—	15
Musculo spiral	5	0	5‡	3	1	2	—	11
Internal cutaneous ...	1	1	0	—	—	—	—	1
Musculo-cutaneous ...	1	0	1	1	1	—	—	3
Posterior interosseus	2	1	1	—	1	—	—	3
Brachial plexus	—	—	—	1	—	—	—	1
,, inner cord ...	3	0	3§	—	—	—	—	3
,, posterior cord	2	0	2	—	—	—	—	2
Dorsal nerves	1	0	1	—	—	—	—	1
Spinal accessory ...	0	—	—	—	—	1	—	1
Total	41 (in 38 cases)	13	+ 28 = 41	12	4	6	3	66 (in 63 cases)

* Bone fragment in 1. † Metal fragment in 1.
‡ Involved in callus 2. § Metal fragment in 1.

In the examination of cases of *recent* gunshot wounds of a limb it is quite common to find that there is no voluntary movement in the muscles, and that there is anæsthesia of the whole limb without any definite area corresponding to the distribution of a particular nerve. A patient may be shot in the shoulder or arm, and says he felt at the time that the whole limb has been shot away, and found that it was numbed and completely paralysed for some days, after which movement and cutaneous sensation returned. In some cases, however (and it is to these that my remarks will

[1] A communication to the discussion at the meeting of the Medical Society of London on Nov. 1st, 1915.

be confined), the return to normal movement and sensation is not complete, and paralysis and anæsthesia may remain in the distribution of a particular nerve; this, again, may recover under appropriate treatment or still later may give evidence of gross nerve lesion.

These cases of transient inhibition of nerve function have been called "nerve concussion," a term implying a physiological block to nerve conduction rather than an anatomical lesion of the nerve. Possibly the immediate proximity of a missile travelling at high velocity to a nerve trunk may cause some alteration of the molecular constitution of nerve elements or even minute hæmorrhages into the nerve, which may so alter the conductivity of the nerve as to prevent the passage of impulses. Whatever the cause there is no doubt as to the blockage of nerve impulses, and it is often difficult in a recent case to say whether there is an anatomical lesion of the nerve or not. A true diagnosis can only be made after the lapse of some weeks after the receipt of the wound when the electrical reactions of the muscles can be employed, and as any operative interference with the nerve must be postponed until the wound or wounds made by the bullet are firmly healed the case may be kept under observation, treatment in the meantime being applied to the wound and the limb fixed by splints in such a position that the paralysed muscles are completely relaxed.

In nearly all cases of nerve concussion there is a response to faradic current in the muscles supplied by that nerve, although a stronger current may be necessary to obtain a response than is required to produce contraction in the corresponding muscle in the opposite limb, and I look upon the presence of a faradic response in a paralysed muscle within ten days of the injury as an indication of early recovery to normal function. Occasionally no reaction even to strong faradic current can be obtained, but yet complete recovery may follow in time, the following case being an example of this.

Private B, Royal Fusiliers; wounded on Feb. 14th, 1915. A bullet entered the inner side of the right arm 1½ inches above and 1 inch in front of the internal condyle of the humerus, leaving immediately in front of the external condyle. There was no bone damage, but he had had complete wrist-drop since the injury. He came under my care on June 15th, when there was complete wrist-drop and the fingers and thumb were held slightly flexed. The supinator longus and extensor carpi radiales muscles could be voluntarily contracted, but there was complete inability to contract the long extensors of the fingers or thumb. The interossei and flexor muscles acted normally. There was anæsthesia of the dorsal aspect of the thumb and of the proximal phalanges of the index and middle fingers, and of the outer half of the dorsum of the hand. There were no trophic changes and to faradism the supinator longus and radial extensors of the wrist acted normally, but no contraction could be obtained in the long extensor muscles of the fingers or thumb. I found that the patient had only worn a splint for one week since his wound, and so I fixed the forearm and hand is a position of full extension of the wrist and fingers, but regarded the case as one of injury to the musculo-spiral nerve below the branches of supply to the supinator longus and extensor carpi radiales. The patient was very unwilling to undergo any operation and so was treated by massage and constant current. On July 20th the condition was unchanged. On August 3rd, however, 24 weeks after the initial wound, he could voluntarily extend the wrist and fingers, faradic response was obtained, and from this time recovery was rapid.

I had no opportunity of testing this case with a Lewis Jones condenser set, but the fact remains that restoration to function occurred without operation after a complete loss to faradic current. Possibly the absence of previous efficient treatment by splints to relax the paralysed muscles delayed the recovery. In the other cases of nerve concussion a faradic reaction in the paralysed muscles was obtained.

Of the three cases in which operation was not advised all were of interest.

One was wounded by a bullet passing across the posterior aspect of the upper popliteal space, 3 inches above the articular interval of the knee-joint. The patient could contract the gastrocnemius and soleus and was able to flex the toes slightly, but had severe pain in the sole of the foot and marked hyperæsthesia of the sole and postero-internal aspect of the heel. He could not bear the bed-clothes to touch his foot, and treatment by drugs relieved him but little during the three weeks he was under my care.

A second case was wounded by a bullet passing diagonally across the back from the angle of the right scapula to the back of the left hip-joint. This patient came under my care in September, 1914, when he had complete paralysis of the whole of the right limb and anæsthesia of the whole foot, leg, and thigh, except the area posteriorly supplied by the second sacral nerve. He had hæmaturia at first, followed by an increasing swelling at the right loin, which I opened, evacuating a large collection of clear urine from the perinephric space from a perforation of the pelvis of the kidney, and at the same time found a gunshot fracture of the lateral aspect of the body of the third lumbar vertebra. Colonel Purves Stewart saw the case frequently with me and looked upon it as one of injury to the third, fourth, and fifth lumbar and first sacral nerves and advised against an operation, but treatment by massage, &c. This patient has gradually recovered cutaneous sensation in the whole of the limb except a small area on the outer and anterior aspect of the thigh, as well as voluntary movement in all the individual muscles; the action of the quadriceps extensor was the last to return and is as yet very feeble. He can flex and extend the toes and ankle, can flex the knee, and adduct the thigh, but cannot extend the knee against its own weight, although contraction of the muscle can be seen and felt. A faradic response can be obtained in all the muscles except the quadriceps extensor. Joint sense has also returned in all joints of the limb.

The third case was one of injury to the cauda equina, involving the third, fourth, and fifth sacral nerves of the right side, by a bullet passing horizontally across the back at the base of the posterior iliac spines. There was paralysis of the bladder and of the sphincter ani, and anæsthesia of the right side of the buttock, perineum, scrotum, and penis.

In dealing with cases of injury to the peripheral nerves it is necessary to decide whether operative methods are required and when this should be undertaken. First and foremost I would say that no operation upon the damaged nerve should be undertaken until the wound made by the missile is firmly healed and until the surgeon is confident that there is no underlying sepsis in the tissues.

In one case in which I operated upon and resected a portion of a sciatic nerve within three weeks of the injury, when the wounds made by the bullet were healed, I opened in the tissues an area of scar tissue containing glairy mucoid fluid, and my wound slowly broke down with low suppuration. This brownish, mucoid fluid was exactly similar to fluid I have frequently found around a foreign body embedded in the tissues when the wound has healed and which on bacteriological examination is found to contain organisms. I am sure I operated on this case too early, but I am glad to say that now after four months, sensation has completely returned in the previous anæsthetic area and that motor power is returning. As to how long a nerve may be left damaged before operation is undertaken I cannot say, but Sherren states that up to three years from the injury makes little difference to the regeneration of the nerve. During the interval care should be taken to maintain the paralysed muscles relaxed by suitable splints and

to prevent contractures and muscle wasting by passive movement and massage.

The diagnosis of actual anatomical injury to a nerve will depend upon the persistence of the loss of nerve impulses, both motor and sensory, and upon the reactions of the muscles supplied by that nerve to electrical currents. If there is paralysis of the muscles and anæsthesia of the cutaneous area supplied by a nerve, and if the muscles give no reaction to strong faradic current or a reaction of degeneration to a galvanic, persisting for some time, I would advise exploration of the nerve in the area of the wound provided the latter has healed. The recent introduction of the Lewis Jones condenser gives a convenient index in registering muscular reactions, but I have not had sufficient experience of its use to lay down any rule as to which stop must be reached before advising operation, and I hope in the future to use it more, but I look upon an absent reaction to faradism in a muscle as evidence of nerve injury.

Difficulties may occasionally arise in the diagnosis of the exact seat of the nerve lesion where multiple wounds are present in the course of the nerve, but a due consideration of the anatomy will usually determine the site.

In a case under my care a Belgian officer had wounds in the axilla, arm, and forearm, and complete anæsthesia of the ulnar and median distribution in the hand, and wasting and paralysis of the small muscles of the hand, but could flex the fingers and thumb at all joints. The long flexors in the forearm reacted to faradism, but in the intrinsic muscles of the hand complete reaction of degeneration was present, and so it was decided that the nerves were injured in the forearm. At the operation the ulnar nerve was found completely divided, and the median densely fixed in scar tissue 3 inches above the wrist.

Again, in some cases a portion only of the nerve tissue may be implicated, so that only a part of the muscles supplied by it are involved, or the cutaneous anæsthesia may be absent or incomplete.

In one case the patient was wounded in the upper part of the right shoulder, and when seen two months later he had complete paralysis of the triceps and of the long extensor muscles of the fingers and thumb, but yet could voluntarily contract the supinator longus and the extensor carpi radiales muscles. There was no radial or circumflex anæsthesia, and the deltoid, supinator longus and extensor carpi radiales muscles reacted normally to faradism, whereas in the triceps and long extensors of the fingers and thumb complete reaction of degeneration was found. There was no improvement after two months' treatment with massage, &c., and so I explored the brachial plexus, when I found that the inner and posterior aspect of the posterior cord was densely bound down in scar tissue immediately above the circumflex nerve, stimulation of which caused a good deltoid reaction. The cord was dissected free from its fibrous attachment and wrapped in Cargile membrane, but as yet too short a time has elapsed (two months) to show any improvement.

In other cases injuries to the sciatic nerve in the upper thigh have only given rise to symptoms on the inner or more frequently in the outer division of the nerve, when on exploration only a part of the nerve has been found to be involved.

Occasionally in these cases of gunshot injuries to a peripheral nerve there is marked hyperæsthesia in the cutaneous area of distribution of the nerve, and I am as yet at a loss to understand its significance. True, in one case in which a metal fragment was embedded in the inner cord of the brachial plexus there was marked hyperæsthesia in the whole palmar distribution of the median nerve, but not on the terminal dorsal aspect of the index or ring finger, whilst in two other cases in which a foreign body, one a metal fragment in the ulnar and the other a large spicule of bone in the sciatic nerve, was present the cutaneous sensation was entirely absent. In another case in which very marked hyperæsthesia was present in the median nerve distribution from an injury in the forearm I found the nerve enlarged in fusiform manner with comparatively little fixation in scar tissue.

Again, I have seen marked hyperæsthesia present in cases of septic wounds in the immediate vicinity of a nerve trunk, and have at present a case under my care, but not included in the table, in which a septic wound in the buttock is associated with such hyperæsthesia in the sole of the foot that even the weight of the bedclothes cannot be borne, and yet there is no motor disability; while in other cases hyperæsthesia is associated with a clean healed wound, and dissection has shown the nerve to be involved in scar tissue in exactly the same manner as when anæsthesia is complete. I would ask my medical colleagues to explain this.

What is the anatomical lesion found at operation in these cases? In the 38 cases in which I have operated 3 had lesions of two nerves, so that 41 nerves have been explored. In these, 13 cases showed complete anatomical division of the nerves, 2 of these being of the third, fourth, and fifth sacral nerves in the terminal portion of the cauda equina, and so perhaps should not be included in this series of peripheral nerve injuries. The table shows the relative frequency of complete nerve division. It is more frequent to find the nerve trunk intimately fixed to the surrounding tissues in a mass of dense scar tissue involving either the whole or one aspect of the nerve. In one case of ulnar paralysis from a wound in the arm I found the nerve swollen and fusiform in shape for 2 inches, and from the centre of which a firm fibrous cord joined the nerve to the scar of entry of the bullet. I removed this fibrous band, and microscopically it was found to contain hair follicles and sweat glands. I think that in this case there is little doubt that the bullet actually perforated the nerve. In 2 cases the musculospiral nerve was involved in the callus about a gunshot fracture of the shaft of the humerus, whilst in 2 others I found a small metallic fragment of shell casing actually embedded in the nerve trunk, once in the inner cord of the brachial plexus and once in the ulnar nerve. In one case of extensive injury to the sciatic nerve high up in the buttock, complicated by a septic gunshot fracture of the neck of the femur, I found on subsequent exploration of the sciatic nerve that it contained a fragment of bone ¾ inch in length embedded in a marked enlargement of the nerve immediately below the lower border of the pyriformis muscle.

Unless the symptoms point to a partial injury to the nerve I know of no point to distinguish between complete nerve division and involvement in dense scar tissue. I have now operated upon cases in which there have been complete anæsthesia and paralysis of the muscles supplied by the nerve and with complete reaction of degeneration, but in which I have found that the nerve is undivided, but densely fixed by scar tissue to surrounding structures, but possibly further experience with the Lewis Jones condenser may yield some indication of the lesion. The anatomical lesion is of small moment, however, as operative treatment is required in either case, and I think the sooner it is done when asepsis can be guaranteed the better the prognosis for the patient.

In cases of complete nerve division there is no question of the procedure to adopt—the ends must be dissected free, the bulbous proximal end removed

until nerve bundles can be seen, a small part of the distal end resected, and the two ends accurately joined, tension on the nerve being relieved by stretching the nerve and by suitable position of the limb. In my cases I make a free incision and expose the nerve above and below the injury, and then trace each end into it, resect the ends, and join the nerve by means of two sutures of very fine thread passed at right angles to each other, and then put in a continuous lacing suture through the nerve sheath around the junction and wrap it in a tube of Cargile membrane. In one case only was I unable to join the two ends: in this case a large part of the inner and lower aspect of the arm had been blown away, and on subsequent dissection I found an interval of 5½ inches between the ends of the ulnar nerve, with no chance of suturing them. In this case I resected a length of the radial nerve and transplanted it into the interval, reinforcing it with six strands of find thread and wrapped the whole in Cargile membrane, but so far only about two months have elapsed since the operation.

In cases in which the nerve is firmly involved in scar tissue, and which on dissection is found to be very dense and thickened, I am of opinion that the best thing to do, if nerve will allow, is to resect the fibrous portion and join the two ends by accurate suture. I have been more pleased with the progress of cases in which I have resected the fibrous scar than in those in which I have been content to dissect away all the fibrous tissue from the nerve, which leaves a thickened, raw surface, and enclosed the injured area in membrane, for in the former case it appears that the return of nerve function occurs in shorter time.

In 3 cases of extensive injury by scar tissue in the sciatic nerve, in which the injury involved only one of the main divisions of the nerve, I have been able to split the nerve into its constituent inner and outer portions, and have then resected the fibrous block, and joined the two ends, leaving the other portion undivided. In one of these cases, in which the outer portion of the nerve was resected, complete return of cutaneous sensation to wool touch was present in four months, and visible voluntary contraction was present in the tibialis anticus and extensor longus digitorum muscles. The other two sciatic nerves resections are more recent cases. In some cases in which there has been less fibrous thickening matting the nerve to the surrounding tissues, but in which a fusiform thickening was found in the nerve, I have dissected it free, incised the enlargement in its length on each side, and enclosed the nerve in Cargile membrane.

I need hardly add that the treatment of these cases does not cease with the operation. As soon as the operation incision is healed careful treatment by massage and electrical stimulation to the muscles should be begun, as well as passive movements to the joints, to prevent any contractures taking place. The paralysed muscles should be maintained fully relaxed by the application of suitable splints to prevent overstretching and contracture taking place in the opposing muscles, and this is a most important point in the treatment. Treatment may be required for many weeks, but as soon as voluntary movement is apparent the patient should be encouraged to exercise muscles regularly.

Of the results of these cases it is as yet too early to speak, as sufficient time has not elapsed since operation was performed, the operation upon the nerve involved having frequently to be postponed until an aseptic field could be obtained. In 17 of my cases voluntary muscle action has returned at a date varying from six weeks to seven months, the earlier return being noted in the fusiform enlargements of the nerve without a great deal of surrounding scar involvement. In cases in which the nerve has been completely divided and the ends freshened and joined improvement in motor function has been definite in four months, whilst sensation returned earlier. In 15 cases, some of which have been operated upon for four months, no improvement has yet been observed, but probably sufficient time has not yet elapsed to expect this. One case of sacral nerve injury in the cauda equina died from ascending nephritis, whilst in another cauda equina case I found the canal in the last lumbar and sacral areas occupied by a dense mass of scar tissue and callus, and I was unable to find any trace of nerves and was obliged to close the wound and acknowledge defeat.

There is one point which I have noticed, and I would ask if this has been the experience of others, that voluntary action may return in previously paralysed muscles some weeks before any reaction can be obtained to strong faradic current, although with the Lewis Jones condenser a reduction in the stop from No. 10 to No. 5 or 6 has been found with the muscular return.

Wimpole-street, W.

CASES OF
TETANUS-LIKE SPASM LOCALISED TO THE WOUNDED LIMB.

BY R. D. RUDOLF, M.D. EDIN., F.R.C.P. LOND.,
LIEUTENANT-COLONEL, C.A.M.C.; NO. 2, GENERAL HOSPITAL (CANADIAN), FRANCE.

IN this base hospital (No. 2 Canadian General) we have recently had several cases of localised tetanic-like spasm which have for a time given rise to anxiety and much difficulty in diagnosis.

In the days following an influx of wounded into a hospital the medical officers are naturally on the outlook for any signs of that most dreaded disease, tetanus. The routine use of prophylactic doses of antitetanic serum has undoubtedly enormously lessened the chances of these cases occurring, but they do occasionally turn up still in spite of all precautions.

The diagnosis of tetanus is usually all too easy and the disease is generally so soon generalised that even a layman might recognise the condition. There are some cases, however, where this characteristic picture does not occur, and in which time may show that they are not cases of tetanus at all, but merely of localised spasm—spasm, indeed, resembling tetanus exactly, a hypertonic condition of the muscles being constantly present, complicated at frequent intervals by waves of very active and painful contraction, but differing from tetanus in that these spasms remain strictly localised to the wounded limb.

A form of tetanus has been described by Rose (Kopftetanus) in which, as a complication of head wounds, spasms of the same side of the neck and head occur, with trismus. Such a condition may be of the same nature as the instances about to be detailed. Of course, it is possible that in both instances the condition may be due to the tetanus bacillus, but in that event one would have to admit a localised tetanus of great severity, which is hard

to do. The tetanus toxin spreads by way of the nerves, and it is possible that having got as far as the centres for one limb it may go no further, but this is certainly not its usual character, as shown by the rapid sequence of trismus, opisthotonos, and other examples of its widespread influence. More likely is it that an irritable condition of the lower reflex arcs occurs, due perhaps to toxins from the wound, and that then the irritation of the wound is sufficient to cause reflexly the spasms and hypertonicity. The condition in that case might almost be likened to a spinal epilepsy, a state described by Brown-Séquard as occurring in spastic paralysis of adults, where "the slightest touch may throw the legs into violent clonic spasm." Only in the condition in which our patients were the hypertonic state was continuous and the least irritation would at once bring on an added spasm. Hence it would have rather to be likened to spinal status epilepticus.

The severe suffering of the patients, the spasms causing great agony with profuse sweating and rapid pulse, would probably exclude any idea that the condition was hysterical.

CASE 1.—Private, aged 43. Admitted to this hospital under Captain Norman Lesslie's care on Sept. 29th. History: Was shot on Sept. 25th and lay out on the battlefield for two days and night before he was picked up. The wounds were in the right leg, and ever since they were inflicted he had had severe spasms in that leg. He stated that they were no worse than they were from the first. Was given antitetanic serum at the front. On admission there were seen to be two wounds in the right thigh and one in the calf. One of the thigh wounds was ugly and sloughing. No bones were broken. The whole of the right leg and thigh was found to be in a state of constant spasm, the muscles standing out like iron. Any handling of the part would cause violent contractions, which would cause the patient to cry out in agony and sweat profusely. There was absolutely no spasm elsewhere in the body. He was given 1500 units of antitetanic serum as a precaution. On Oct. 7th (12 days after the onset) the following note was made: "The condition resembles tetanus, only is strictly localised to the one lower limb. Morphia and bromides have little effect in lessening the pain caused by the cramps." On October he was much better and the constant spasm was nearly gone, but any handling of the limb would bring on the painful contractions. If the limb was very gently examined, however, it could be felt to be quite relaxed. The patient was sent to England.

CASE 2.—Private, aged 21. Admitted to this hospital under Captain George Philps's care on Sept. 28th. History: Was shot on Sept. 25th and soon carried into a trench, where he lay for the rest of the day. On admission, three days later, he was found to have a severe shrapnel wound of the right thigh. The wound of entrance behind was small, while that of exit in front was large and gaping, and in it the femoral artery could be seen beating. The bone had escaped. On Oct. 5th he was operated upon and free drainage established posteriorly. Spasms set in immediately after the operation and had continued ever since—i.e., up to Oct. 10th, when I first saw him. There was slight fever quite accounted for by the wound. He was very nervous and afraid he was going to die. Pulse rapid, especially after a spasm. The muscles of the whole of the right lower limb were in a state of constant spasm and stood out rigidly. No reflexes were hence obtainable, but on any attempt to elicit them, or indeed any touching of the limb and often without any irritation, violent contractions would occur, which caused the patient to cry out with pain. Morphia and bromides had been found to have very little effect in lessening the spasms. The application of hot cloths had given some relief. On Oct. 12th the patient was much easier and the contractions were much less. The limb could be very gently handled without producing them, but any rough handling, or cold, would bring them on at once. There were absolutely no spasms elsewhere in the body from first to last. The patient was sent to England.

CASE 3.—Private, aged 18. Admitted to this hospital on Sept. 29th. Seen with Captain G. G. Greer on Oct. 5th. History: Was wounded on Sept. 23rd, and lay out on the field for two days. Had been given a prophylactic dose of antitetanic serum. When admitted was found to have a large wound from an explosive bullet in the left buttock with much sepsis. There were also two clean bullet wounds in the right buttock. The large wound was cleansed and two drainage-tubes were inserted into it. He was given 1500 units of antitetanic serum. On Oct. 2nd the tubes were removed from the wound, and this caused no pain. Twenty-four hours later—viz., ten days after he had been shot—cramps began about the wound in the left buttock and rapidly spread down the whole limb. Occasional slight twitchings were noticed by the attendants in the other limb also, but of these the patient was not conscious. There were absolutely no spasms elsewhere. The pain produced by the spasms was very severe and little relieved by drugs. On Oct. 7th he was again given 1500 units of antitetanic serum. When I first saw the patient he was in great pain. The whole of the left lower limb was in a state of constant spasm, and every now and then spasms would occur which would cause him to cry out and show every evidence of intense suffering. Slight relief was given by very gentle massage. He gradually improved, and on Oct. 13th the note runs: "Patient now quite happy, and says that he is comfortable. The muscles of the left leg, however, are still firmer than those of the other limb." He was then sent to England to convalesce.

All these patients ran the same course of gradual improvement. In one case the spasm commenced immediately after he was shot, while in the case of the other two it commenced in one after a slight operation and in the other only when the drainage-tubes were painlessly removed.

It is fairly common to see slight twitchings in the vicinity of wounds and even a degree of spasm which is of a protective nature, but during the course of nearly a year's experience in base hospitals in France I have not come across cases such as these three here described. They are published in the hopes that others who may have seen similar instances may be induced to put them on record so that perhaps we may be able to come to some conclusion as to the nature and underlying cause of the condition.†

A CASE OF ORAL SEPSIS.

BY ADOLPHE ABRAHAMS, M.D., B.C. CANTAB., M.R.C.P. LOND.,
TEMPORARY CAPTAIN, R.A.M.C.; MEDICAL SPECIALIST, CONNAUGHT HOSPITAL, ALDERSHOT.

DURING its career of universal popularity, oral sepsis was credited with the capability of causing every ill from which mankind was prone to suffer—from glands in the neck to appendicitis, from simple dyspepsia to pernicious anæmia, from Ludwig's angina to rheumatoid arthritis; from conditions obviously and directly associated with the mouth, to conditions for which pathology supplied no clue whatever. So excessive were the claims advanced for the malevolence of what has been cynically described as the more septic end of the alimentary canal, that the inevitable reaction has resulted in an undue tendency to discredit its influence, particularly as the coexistence of teeth in an indescribable condition with apparently perfect general health is in certain classes of society the rule rather than the exception. Occasionally a clear case of indictment occurs to remind us that the subject of oral sepsis is by no means to be disregarded so drastically as the swing of the pendulum has induced us to think. The following case appears to me to be striking enough to deserve a full description.

Private ——, aged 30, was admitted to the Connaught Hospital, Aldershot, on July 11th, 1915, stating that he had been ill for four days with headache, pain in the back, and slight cough, that he had been taken suddenly ill although he had not vomited or shivered, and that he had never suffered from any previous illness.

On admission, the temperature was 102·2° F., the pulse-rate 98, and the respirations 24. The note describes the patient as "a very dark, spare man who has been abroad but has never had any tropical disease. Teeth dreadful." There was no evidence of any thoracic trouble except slightly harsher breathing at the right apex. Leucocytosis, 19,200. There was a slight cough with clear sputum. The case was regarded as probably one of right apical pneumonia.

The note on July 29th states: "Intermittent fever has been present since the above, the temperature has been at its highest (102°–103·5°) almost every day at 6 P.M., and the pulse-rate has risen synchronously. The leucocyte count has varied between 20,000 and 24,800, the differential count always showing an increase of polymorphonuclear cells. The blood has been examined twice for organisms and on several occasions for the malaria parasite, always with negative result. Large doses of quinine have been without influence. The urine has been twice examined and is sterile. Slight general bronchitis has been present; repeated examinations of the sputum for the tubercle bacillus have been made with negative result."

For the first half of August the patient improved as regards his temperature, but from the 14th onwards intermittent fever recurred, with increased pulse frequency and leucocytosis. He appeared to be losing ground more rapidly, and a note on August 25th states that his weight is now only 9 st. 12 lb., having fallen from 10 st. on August 4th.

Since his condition pointed beyond any doubt to some form of persistent sepsis, and since the most exhaustive examinations had failed to elicit the slightest clue to any other source, it seemed reasonable to incriminate the septic teeth. The patient, who had refused early in his illness to undergo dental treatment or to believe that his teeth, which "had never ached in his life," could be the cause of his trouble, now yielded more easily to fresh pressure, and on August 30th five carious stumps were removed. On this day his temperature was 103°, pulse-rate 116, and weight 9 st. 10¾ lb. On Sept. 3rd three teeth were extracted. The temperature remained intermittently raised as before until the 10th, and not a little doubt was cast upon the advantage of his dental experiences. But on that day the temperature fell to 97°, and for the rest of his stay in hospital (until Oct. 2nd) it never rose above 98°, the pulse-rate varying considerably from 44 to 92. On Sept. 20th the last seven offenders were extracted.

More striking than the cessation of fever was the general improvement. As stated above, the weight on August 30th was 9 st. 10¾ lb. On Sept. 16th it was 10 st. 4 lb.; on the 23rd, 10 st. 8¾ lb.; and on the 30th, 11 st. The patient, despite obvious masticatory difficulty, "could not get enough to eat."

A final point of interest was the leucocyte count. On August 22nd it was 19,000; polymorphonuclears, 81·8 per cent. On Sept. 10th, 28,200; polymorphonuclears, 79 per cent. On the 16th, 19,200; polymorphonuclears, 71 per cent. (Temperature on this day 97·4°, pulse-rate 64.) On the 21st, 27,200; polymorphonuclears, 75·1 per cent. (Temperature on this day 97·8°, pulse-rate 60.) On the 28th, 11,800; polymorphonuclears, 66 per cent. On Oct. 2nd, 9000. In other words, the polymorphonuclear leucocytosis persisted with gradual subsidence during the completely apyrexial period of his recovery.

I am greatly indebted to Lieutenant-Colonel W. Turner, commanding officer to the Connaught Hospital, for permission to publish these notes; and to Lieutenant T. C. Cregan, dental surgeon, and to Lieutenant Francis Jones, R.A.M.C., pathologist to the hospital, for their invaluable assistance and for the continued interest they took in this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Discussion on Paratyphoid.

A MEETING of this section was held on Nov. 9th, Dr. A. E. GARROD, the President, being in the chair.

The PRESIDENT said that while ordinary medical discussions would seem trivial at such a time, attention might well be focussed on anything tending to brighten the suffering due to the war, if only by a jot.

Sir BERTRAND DAWSON, in opening a discussion on Paratyphoid, began by paying a tribute to the organisation of Stationary Hospital 14, which was such as to make it possible to pursue a research to the very end in every case, not merely to establish a positive diagnosis by finding the causative organism, but also—a much more arduous matter—to make sure of its absence in other cases. A brilliant feature of the medical history of the war had been the small number, exceedingly small in relation to the number of troops in France, of cases of "enteric fever"—this term being by common consent used in the discussion to include all the infections caused by the typhoid bacillus and bacilli A and B of paratyphoid—1363 cases up to date, of which the majority were paratyphoid. The existence of the disease at all was due to carriers, whether through the agency of man or insects, as there had been no epidemic and no general infection of the food-supply at any time. Next to antityphoid inoculation and good sanitation, this result was due to the abundance of good food supplied and the consequent excellent nutrition of the troops. Sir Bertrand Dawson went on to describe in detail the result of 15 necropsies on cases of paratyphoid. In most of them the lesions consisted of the typical ulceration found in typhoid fever; in three where ulceration existed in the large intestine perforation had occurred at the site of the appendix. Other specimens showed localised lesions in the spleen, liver and lung. The clinical picture of the disease was not such that it could be distinguished at sight, although it might be stated that as compared with typhoid the patient had less chance of dying, a smaller liability to complications, and a more rapid recovery. A characteristic feature was a bad beginning with a marked turn for the better after a few days. The relation of pulse-rate to temperature, which it was well to record on the same chart, was not only of great help in prognosis—a pulse-rate of under 100 being reassuring even when other signs were bad, but the slow pulse was in striking contrast with the pulse in other infections. From influenza, with which mild cases could be confused, the gradual onset, the absence of catarrh of the upper air-passages and the rapid convalescence, served to distinguish, and Sir Bertrand Dawson deprecated the loose extension of the term "influenza" to cover a host of slight non-catarrhal affections. Many other points in symptomatology were lucidly explained, and must wait for the appearance of the full text of the address.

Professor G. P. DREYER followed with an account of the laboratory work which has proved up to the hilt the existence of paratyphoid as a clinical entity. The agglutination test, if carried out with standard cultures and proper technique, gave a positive result in practically every case of enteric fever. For a positive test the essential thing was not a high degree of agglutination, but the fact that this power was changing from day to day, increasing up to the acme of the attack—generally the twentieth day—and decreasing afterwards. This characteristic curve of the serum reaction completely eliminated any difficulty from previous antityphoid inoculation.[1] Even paratyphoid A, which produced as a rule very little agglutinating power in a first attack, gave the typical rise and fall of this power; a rise from 1:10 to 1:25 or 1:50 being of greater significance in diagnosis of active disease than a stationary

[1] A chart of an agglutination curve was given in a paper on Antityphoid Inoculation by Professor Dreyer, Dr. Ainley Walker, and Captain Gibson in THE LANCET of Feb. 13th, 1915.

figure of 1 : 10,000. Turning to prophylaxis, Professor Dreyer considered that typhoid fever might so far be disregarded in France as its case incidence had been quite trifling, and he added his testimony to the care with which the antityphoid vaccine had been prepared and administered in order to produce this happy result. He laid stress on two points in connexion with preventive inoculation. First, he believed that a large number of very mild and therefore overlooked cases occurred in men who had been inoculated. And, secondly, that the number of cases might tend to increase, whilst still remaining mild, if the men entered an epidemic zone. On the important question of immunising the troops against paratyphoid A and B, as well as against typhoid fever, Professor Dreyer quoted the work of Castellani, who was the first to show the possibility of doing so by simultaneous injection of different microbes in the rabbit; and demonstrated charts of his own proving that, far from interfering with each other, the simultaneous inoculation might result in an increased rise of the immunity curve for each of two organisms.

Colonel Sir WILMOT HERRINGHAM gave his own experience of trench fever. It began in June and is now tailing off. The onset may be quite sudden, and the duration generally three or four days. There may be one bout only, but a second, with a clear apyrexial interval of a few hours to 10 days, is frequent, and three or even four of such bouts may occur. The name of "trench" fever is not descriptive, as it is not specially characteristic of the trenches, but affects both the fighting and the medical units. In his opinion it was probably not conveyed by lice, but rather by some other insect, and light on these and other points was likely to be thrown by work soon to be published.

At this point the meeting was adjourned for a fortnight, when Sir William Osler will resume the discussion.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held at St. John's Hospital for Diseases of the Skin on Oct. 19th, Dr. J. L. Bunch, the President, being in the chair.—Dr. A. E. Shipley, Master of Christ's College, Cambridge, read a paper entitled "Insects and Camp Life," in which he gave a description of the life cycle of Pediculus capitis, Pediculus vestimenti, the flea (Pulex irritans) and the bed bug (Cimex lectularius), and the biting apparatus of the male mosquito. He discussed the minor discomforts of our army and their relation to these insects and the methods of dealing with them. The paper was also illustrated by a series of lantern slides.—At the clinical meeting which followed Dr. Morgan Dockrell showed a case of Melanotic Sarcoma which had been treated by exposures to radium, the last of which took place in June of this year. The condition appeared cured except for a slight amount of pigmentation present.—The President showed: 1. A case of Erythema Iris in a young girl who had had repeated attacks of the same during the last ten years. 2. A man who had suffered from large numbers of abscesses since childhood. During this time he had had a finger and a toe amputated. The patient had now a deep-seated ulcer on the left leg which had been present for a number of years. The Wassermann reaction was positive. He had 100 abscesses in all, and attributed the early ones to vaccination.—Dr. W. Knowsley Sibley said he did not think that the case was of a syphilitic character, but was inclined to look upon it as being of a tuberculous nature.

THE RAG AND FLOCK ACT AT BRISTOL.—At Bristol police-court on Oct. 29th a local tradesman was summoned under the Rag and Flock Act for unlawfully selling flock which did not conform to the standard of cleanliness prescribed by the regulations of the Local Government Board. The city analyst stated that two of the samples contained 12 parts of chlorine and another sample contained 65 parts. The bench of magistrates imposed a fine of 40*s*.

THE LATE STAFF-SURGEON THOMAS HARVEY, R.N. (RETIRED).—Staff-Surgeon Thomas Harvey died recently at the Royal Albert Hospital, Devonport, in his sixty-eighth year, after an operation. The deceased was the son of the late Mr. A. Harvey (who formerly practised at St. Just, Cornwall) and qualified M.R.C.S. and L.S.A. in 1871 and 1870 respectively. He shortly afterwards entered the Royal Navy as assistant surgeon, and retired with the rank of staff-surgeon about 20 years ago. He resided at Keyham and was well known in the "Three Towns."

Reviews and Notices of Books.

A Guide to Gynæcology in General Practice.

By COMYNS BERKELEY, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., Gynæcological Surgeon to the Middlesex Hospital and Chelsea Hospital, &c.; and VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Assistant Gynæcological Surgeon to the Middlesex Hospital and Chelsea Hospital, &c. Illustrated. London: Henry Frowde and Hodder and Stoughton. 1915. Pp. 425. Price 25*s*. net.

THIS book is frankly written to aid the practitioner who is confronted with a case that he does not understand. The work is divided into five main portions: the first deals with methods of examination; the second and third with symptoms and physical signs and their interpretation; the fourth deals with treatment, and the last with medico-legal questions such as nullity of marriage, criminal abortion, and compensation claims. The first portion is dealt with adequately, but apparently only the methods which the authors themselves use are mentioned; for example, the method of passing the uterine sound after inserting a tubular speculum as far as the cervix and swabbing the latter with antiseptic is omitted, although this method is thought by many to be less liable to infect the uterus than either of the two simpler methods described in the text.

The best chapters in the book are those in Parts II. and III., where subjects which are difficult to discuss on paper, such as abdomino-pelvic pain without physical signs of pelvic disease, are dealt with in a way that should prove useful to the practitioner who meets with a patient with such symptoms. The importance of the vermiform appendix in gynæcology is recognised and useful diagnostic points are given. The illustrations of this portion are excellent and should prove most useful; they show the pathological condition as it would appear if seen through the anterior wall of the abdomen, and thus enable one to realise what the relations of any given mass would be to the brim of the pelvis and to adjacent viscera.

The practical nature of the book is well shown in the pages devoted to the treatment of ovarian tumours; no operations are described, as these are dealt with in other text-books, but all the objections that a patient may raise against operation are suggested and appropriate answers to such objections are given. In treatment generally the advances made in pelvic surgery are brought out and operative interference is usually advocated where possible instead of the older and less satisfactory methods by prolonged medical treatment. Where drug treatment is considered satisfactory, however, actual prescriptions with definite doses are given, the latter being in both metric and English quantities.

In the final portion of the work the authors touch on subjects that are usually neglected and have given considerable space and care to them. Criminal abortion is gone into in detail and the position of the doctor examined. The opinion of counsel given to the Royal College of Physicians of London in 1896 is quoted, and also the remarks subsequently made by one of the counsel in question when a judge some 20 years later. Finally, we have the opinion of the College delivered in July, 1915. It is pointed out that all the above leave the doctor in a very difficult position as to what is his correct conduct if he should be unfortunate enough to have such a case under his care, and so

the writers take 14 hypothetical cases and state what in their opinion the doctor should do in each.

To those engaged in general practice who do not frequently have to deal with gynæcological cases the book will have a special value.

Urgent Surgery.

By FÉLIX LEJARS. Translated from the seventh French edition by W. S. DICKIE, F.R.C.S. Eng., and ERNEST WARD, M.D. Cantab., F.R.C.S. Eng. Third English impression. Vol. II. With 20 plates and 1086 illustrations. Bristol: John Wright and Sons, Limited. 1915. Pp. 588. Price 25*s.* net.

A WORK that has reached seven editions in its original language, and calls for a new issue in translation, needs no introduction, for its popularity is assured. This, the second of the two volumes, deals with the genito-urinary organs, the rectum and anus, the strangulated hernias, and the extremities. For the benefit of new readers let it be said at once that "urgent" means anything the surgeon may be called upon to do any day, deliberately, but without procrastination. 230 pages are devoted to fractures and dislocations, but the methods of dealing with broken bones here described are not the improvisations of "urgency"; they are very largely elaborate adaptations of plaster-of-Paris by very special mechanical apparatus, and are intended for the final correct apposition and immobilisation of the fragments. The great attraction of the work for the English reader lies in the quick realisation that it is from the pen of a man of enormous experience; indeed, it might almost be said that, like all first-rate text-books, it requires considerable experience in the reader to appreciate to the full the wealth of observation that has gone to the production of these pages. Fresh from an unfamiliar difficulty met with in the theatre the surgeon will turn to Lejars to see whether he had met it and how he dealt with it. He will not be disappointed, but will read on with a companionable feeling of confidence; it is so obvious that Lejars, too, has had his difficulties and overcome them; there is a pleasantly honest sense of the frequency of exceptions to the best laid laws and principles.

Of course, there are holes to be picked if it be worth while; for example, is a hypodermic injection of morphia any more valuable when given at the level of the neck of the sac (in a case of strangulated hernia) than if given, say, in the arm? There might be a psychological preference. And concerning the "electric enema" the author protests too much. The real value of the book lies in the wide range played over by the writer's instruction and suggestion. We may instance the study of retrograde incarceration, the cautionary tales of the sinister part played by the bladder in strangulated hernias, and the foot-note as to the complication introduced by ascites. Again, take the discussion of how to deal with crushed extremities; is it to be primary amputation? How far shall the attempt at preservation go? Are there any guiding signs? The reader may not agree with the author, but he will have learnt how to test his own arguments; and, in doubt, he has found a good guide.

The present impression differs but little from the last; there are a few more and a few improved illustrations. The plates seem hardly to be worth their prominence. We notice that M. Lejars is a convert to iodine.

Mr. Dickie, going on active service, found, by a lucky chance, a translator to succeed him, his equal in accuracy and fluency, Dr. Ernest Ward.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, NOV. 2ND.

THE General Council of Medical Education and Registration began its winter session at its offices, 299, Oxford-street, W., on Tuesday, Nov. 2nd, Sir DONALD MACALISTER, the President, being in the chair. Sir Donald MacAlister's interesting presidential address was the subject of a leading article in THE LANCET of Nov. 6th.

New Arrangements for Elections.

By an Order of the Privy Council dated Oct. 27th, based on a recent emergency Act of Parliament, no isolated election for the Medical Council need be held in 1916, even in the case of an unexpected vacancy, and the next term of office of each of the six Direct Representatives will begin with the year 1917, thus saving the Council and its branches any added expense during the coming year.

New Rules for the Training of Midwives.

The Central Midwives Board for England has framed new rules which provide for an extension of the prescribed course of instruction in view of the fuller employment of certificated midwives, due to the absence on military duty of medical men in family practice. These rules are being considered by the English Branch Council during the present session. In Scotland there is as yet no corresponding statute, and no official certificate of fitness can be obtained by midwives, nor is their practice regulated by any supervising authority.

New Members.

Professor Harvey Littlejohn was appointed a Member of the Council for the term of five years from Nov. 13th as Representative of the University of Edinburgh in the place of Sir Thomas Fraser, who has retired. Professor Saundby has been reappointed as Representative of the University of Birmingham.

Dr. LITTLE, in moving a vote of thanks to the President, said that the illuminating addresses which he delivered to them every year formed only a small part of his arduous and laborious duties. It must be a proud consideration for Sir Donald MacAlister that he occupied office at the time they were winding up their long tenure of the premises in Oxford-street. He hoped Sir Donald MacAlister would inaugurate their transfer to the new building in Hallam-street. He was sure that future addresses delivered in the new building could not be more useful and important than those they had heard from their President in the past.

The vote of thanks was agreed to.

Indian Medical Service.

Dr. NORMAN MOORE moved that the following table (see p. 1089) showing the results of competition for commissions in the Indian Medical Service be received and entered in the minutes, and referred to the Examination Committee for its consideration.

The motion was agreed to.

On behalf of Sir Charles Ball, chairman of the Examination Committee, the PRESIDENT moved that the thanks of the Council should be conveyed to the Under Secretary of State for India for the returns which he had again furnished to the Council, with the request that such returns might in the future continue to be furnished to the Council.

The motion was agreed to.

Statement of the Degrees, Diplomas, and Licences of the Candidates for Commissions in the Indian Medical Service, who in July, 1915, presented themselves for Examination; Showing the Numbers that did and did not Pass; and Distinguishing the Qualifications, both Medical and Surgical, under the Several Licensing Bodies.

Order of merit.	Licensing Bodies.						Results of examination.					
	Conjoint: Lic. R. Coll. Phys. London. / Mem. R. Coll. Surg. England.	University of London.	University of Edinburgh.	National University of Ireland.	Queen's University of Belfast.	Indian or Colonial Universities.	Passed for vacancy.	Rejected.	Deficient in— Surgery.	Pathology and Bacteriology.	Anatomy and Physiology.	Chemistry and Pharmacy.
1	F.R.C.S.	—	—	—	—	—	1	—	—	—	—	—
2	—	—	—	—	1	—	1	—	—	—	—	—
3	—	—	—	1	—	—	1	—	—	—	—	—
4	1	—	—	—	—	—	1	—	—	—	—	—
5	1	—	—	—	—	—	1	—	—	—	—	—
6	—	—	—	—	—	M.B., B.S. Punjab.	1	—	—	—	—	—
7	1	—	—	—	—	—	1	—	—	—	—	—
8	—	—	—	—	—	M.D., C.M. M'Gill.	—	1	—	—	1	—
9	—	—	—	—	—	M.B., B.S. Bombay.	—	1	1	—	—	—
10	—	D.P.H. Lond.	—	—	—	L.M. & S. Bombay.	—	1	—	—	1	—
11	—	—	1	—	—	—	—	1	—	—	1	1
12	—	—	—	—	—	L.M. & S. Bombay.	—	1	—	1	—	—

Ten vacancies advertised. Only seven candidates qualified.

Filling the Gaps.

At its meeting on July 26th, 1915, the Executive Committee had before it certain correspondence with the College of Physicians and Surgeons of Ontario. The Provincial Medical Act had been amended with the view to the extension of Part II. of the Medical Act, 1886, to Ontario, and the Council of the College had adopted the resolution necessary to give effect to the amended Act, but Part II. of the Medical Act, 1886, had not then been extended by an Order of His Majesty in Council to the Province of Ontario.

In view of the urgency of the question of registration of Ontario practitioners in the United Kingdom seeking commissions in the Royal Army Medical Corps, the Executive Committee adopted the following resolution:—

That in the event of information being received that the arrangements for reciprocity with the Province of Ontario have been satisfactorily completed, the President be empowered on behalf of the Executive Committee to direct the Registrar as follows:—That any person who holds the Licence or Membership of the College of Physicians and Surgeons of Ontario, granted after examination in Medicine, Surgery, and Midwifery, together with the Licence to practise in the Province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886, and that any graduate in medicine of any university of the Province of Ontario approved by the College of Physicians and Surgeons of the Province whose name is registered in the Colonial List shall be entitled to register his medical degree as an additional title in the Colonial List of the Medical Register. The following are the universities at present approved by the College of Physicians and Surgeons of Ontario: Queen's University, Kingston, Ontario; the Western University, London, Ontario; and the University of Toronto.

Part II. of the Medical Act, 1886, was extended to Ontario by an Order of His Majesty in Council on August 12th, 1915, whereupon the President on August 18th, 1915, exercised the powers conferred upon him by the committee and directed the Acting Registrar to register the names of Ontario practitioners possessing the recognised qualifications.

On the motion of the PRESIDENT it was agreed that the report should be received and entered on the minutes by way of record.

The Executive Committee reported that Part II. of the Medical Act (1886) having been extended by an Order in Council dated June 10th, 1915, to the Province of Saskatchewan, the committee had considered the conditions under which medical qualifications granted in the province shall be recognised for registration in the Colonial List of the Medical Register of the United Kingdom. The committee had before it no sufficiently recent and exact information in regard to the course of professional study and examinations required in the Province. In view, however, of the urgency of enabling practitioners from Saskatchewan to obtain registration in the United Kingdom, and of the fact that the Acting Registrar had sought the necessary information on June 15th, 1915, the committee adopted the following resolution:—

That in the event of information being received that the arrangements for reciprocity with the Province of Saskatchewan have been satisfactorily completed, and that a course of professional study extending over five years has been instituted in the Province, the President be empowered on behalf of the Executive Committee to direct the Registrar as follows: That any person who holds the Licence of the College of Physicians and Surgeons of Saskatchewan, granted after examination in medicine, surgery, and midwifery, together with the Licence to practise in the Province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886. That the attention of the Council of the College of Physicians and Surgeons of Saskatchewan be called to the resolution of the General Medical Council of June 5th, 1890, requiring that the course of professional study should occupy at least five years, and that the College be informed that the foregoing resolution becomes operative only on condition that such a course is instituted in the province.

This resolution was communicated to the Medical Council of Saskatchewan on August 7th, 1915, but no answer has as yet been received, and the President, therefore, has not exercised the powers conferred upon him by the Executive Committee.

In view of a possible loss in the mails a copy of this letter and of a previous letter asking for the requisite information was sent on Oct. 6th.

The PRESIDENT, in moving that the report be received and entered on the minutes, said that in this case their progress was not so great as in the case of Ontario. Though the Privy Council had applied the Act to the Province of Saskatchewan they were still waiting for the necessary information from the authorities of the province. It was quite possible that some of their communications might not have reached the authorities in Canada owing to interception on the high seas.

Mr. DHANPAT RAI.—In accordance with Standing Order, Cap. XVI., 1 and 2, the Executive Committee reports as follows:—Mr. Dhanpat Rai was registered on Feb. 8th, 1901, with the address Lahore, India—which is still his registered address—and the qualifications M.R.C.S. Eng. 1901, L.R.C.P. Lond. 1901. The Royal College of Physicians of London withdrew his Licence on April 30th, 1914, for discreditable advertising, and the Executive Committee on May 25th, 1914, directed the Registrar to delete this qualification from Mr. Rai's entry in the Medical Register. On June 10th, 1915, the Royal College of Surgeons of England removed Mr. Rai from being a Member of the College for disgraceful conduct in a professional respect in connexion with advertisements relating to his practice, and the Executive Committee on July 26th, 1915, directed the Acting Registrar to delete from the Medical Register the M.R.C.S. Eng. previously held by Mr. Rai.

The Executive Committee further resolved:—

That in accordance with Standing Order, Cap. XVI., 1 and 2, as amended by the General Council on June 1st, 1914, this erasure of Mr. Rai's only qualification be reported to the Council, his qualification of the Licence of the Royal College of Physicians of London having been erased by direction of the Executive Committee on May 25th, 1914; and further, that the committee report that it was satisfied that Mr. Rai had not been deprived of his qualification on the ground of the adoption of any theory of medicine or surgery.

The PRESIDENT said this was a case of a man whose qualifications had one by one been removed. It remained with the Council to direct what should be done with his name.

The Council directed the Registrar to erase the name from the Medical Register as having no qualifications.

Names Restored to the Register.

After the Council had sat *in camerâ* on a report by the Executive Committee concerning application for restoration of names after erasure under Section XXIX. of the Medical Act, 1858, the PRESIDENT announced that the Registrar had been directed to restore the names of Mr. James Morrison Orr and Mr. Thomas Francis Roche to the Medical Register.

Responsibilities of the General Practitioner.

Dr. MCVAIL submitted the following motion :—

That it be remitted to the Education Committee to report to the next meeting of the Council on the education of medical students in the ethical relationships of medical practitioners to the State, to their patients, and to each other.

He said the subject was obviously within the sphere of the General Medical Council, which must often in the past have devoted attention to it. His reason for bringing the subject before the Council now arose from his own experience of the importance of the teaching of medical ethics in the public health service and more recently under the Insurance Act. The subject was not merely important, but its importance was growing. When the notification of infectious disease was first introduced, the profession came more closely than ever before into relationship with the State. When notification was eventually extended compulsorily to all areas throughout the country the relationship of the doctor to the State became still closer. Notification of infectious disease cost the community a large amount of money, and it was manifestly important that notification should be so employed as to achieve the best possible results. These results depended on the action of the notifying practitioner on the one hand, and of the officers of the public health service on the other. Promptitude and accuracy of notification was of the first importance in checking the spread of disease. In any group of students some would become general practitioners and others medical officers of health or officers of public institutions, such as hospitals for infectious disease. He thought it desirable that the teacher should point out to the students that in one capacity or the other they had a duty towards the State. The duty of the general practitioner was to aim at promptitude and accuracy. In the case of the medical officer of health or the officer of a hospital for infectious disease his duty was so to deal with his professional brother who had made the notification so that the practitioner should suffer no harm from an occasional error. In his own experience he had found that a practitioner in his anxiety to prevent the spread of infection had notified—as it turned out somewhat prematurely—a case of infectious disease, or had notified an ordinary case of illness as infectious disease. The case turned out not to be as notified, bringing discredit on the practitioner, who in all good faith had been trying to help the public authorities. The doctor whom he had in his mind some time afterwards forwarded by one post notification of several cases of enteric fever occurring in the same house. When he was asked why he had not notified the first case earlier he replied that he was going to take very good care to notify no case until he was absolutely certain, and that he would rather risk the spread of disease than have his reputation attacked as it had previously been when he had made somewhat earlier notification. That was one instance and there were others. Sometimes there was the question of the fitness of a patient for removal to hospital. In that case the medical officer of health and the general practitioner should be brought into proper relationship. The general practitioner might be partly influenced by a desire on the part of the parents that a child should stay at home, and might not take into full consideration the influence on the spread of disease. Here, if possible, the medical officer should meet the general practitioner. In Scotland the medical officer of health had the right of entry to any house where there was reason to suspect the existence of infectious disease. In that case also it was important that the medical officer and the general practitioner should be brought into contact, so that good feeling might exist between them. These were only details, and the importance of them depended partly on whether the medical officer was a whole-time or a part-time official. The number of whole-time public officers was increasing. He was in a sanatorium only the other week, and the doctor in charge deplored to him that nearly 75 per cent. of the cases notified in his area were only notified after the disease was advanced. It was very important that the young doctor should have impressed on him by his teachers the desirability of early notification in the interest of public welfare. But even there he could conceive a little difficulty arising for the practitioner as between the personal welfare of his patient and the welfare of the public. It might be an ethical question of some delicacy whether he was bound to notify. That was a point on which there might be discussion. Under the Insurance Act there had been an extension of the contract between the practitioner and the State. In its wisdom that Council had called attention to certification under the Insurance Act as a matter which, if not properly dealt with, might bring the individual under the cognisance of the Council. There, again, he recognised that the practitioner might be in a difficulty. On the one hand he had to protect the funds of the Approved Society, of which he was not an official, and he had to think of the relationship of the doctor and the patient on the other hand. Not long ago he had the pleasure of reading an introduction written by Sir Clifford Allbutt to an encyclopædia of medicine. In that introduction Sir Clifford Allbutt dealt with the indiscriminate prescribing or using of drugs in this country. He gathered that in Sir Clifford Allbutt's opinion there was far too much drugging, the criticism applying alike to the whole population, insured and uninsured. He did not in the least know whether Sir Clifford Allbutt thought it was a question for medical ethics as to whether medical men could endeavour to limit the diseases of patients through this question of drug consumption. Obviously there was room for discussion here, looking to the comparatively small amount of drugs used in Scotland as against the amount used in England. The General Medical Council was interested in the whole subject because it was very important that the number of penal cases should be diminished. If by means of the guidance given to their students these cases could be diminished they would be doing a good turn to their successors in office. Bearing in mind the constantly increasing duties of the general practitioner, it was important that the desirability of applying business habits should be inculcated into his mind. He would suggest that the Education Committee should, in the first place, find out what were the facts, what was the scope of the education that was being given on the subject in the different schools of medicine in the country, and by whom it was being given, and under what chairs and lectureships. Having found the facts he would like the Education Committee then to consider whether the education should be compulsory or optional. Subject to anything which the Committee might suggest, his own personal feeling was that the subject should be compulsory. If that were so the question would arise whether the teaching should be the function of one chair or lectureship, or be divided amongst several. If Dr. Saundby had been there he might have had something to say on the subject. Naturally the question would arise, in view of the already overcrowded curriculum, How much education was to be given on the subject? That was a matter which the Education Committee might advise them upon. His own feeling, after a good deal of experience at three universities in medical jurisprudence and public health, was that in jurisprudence something less might be done in the teaching of toxicology. Teaching students how to analyse poisons, and the contents of the stomach in cases of suspected murder, and some other elaborate processes, was really going outside the work of the ordinary practitioner.

Mr. VERRALL, in seconding the motion, thought there was a *primâ facie* case for inquiry. The Council could make a decision on the report of the Committee. Difficult cases were apt to arise in which few of them were so fortunate as to be able to say what was the right course for a doctor to take as between the interests of their patients and the interests of their brethren and the State. Many sources of friction would be avoided if some general standard could be decided upon after inquiry.

On the motion of Dr. MACKAY the adjournment of the discussion was agreed to.

The Council rose at 4 o'clock.

WEDNESDAY, NOV 3RD.

To-day's sitting was entirely devoted to the consideration of penal cases. Sir DONALD MACALISTER, the President, occupied the chair.

In the case of Ulick Joseph Burke, registered as of 205, Vicarage-lane, Stratford, London, E., L., L.M. 1896, R.C.P. Irel.; L., L.M. 1896, R.C.S. Irel., who was summoned to appear before the Council in respect of three convictions for being drunk, the Council ordered that the respondent's name should be erased from the Register.

A similar finding was reached in his absence against Edmund Lyall Haynes, registered as of 6, Queen's Club-

terrace, West Kensington, London, W., L.S.A. Lond. 1888, M.R.C.S. Eng. 1888, L.R.C.P. Lond. 1888, who was summoned to appear before the Council in respect of four convictions, two of these relating to charges of being drunk, the third involving sentence of one month's imprisonment for obtaining £1 with intent to defraud, and the fourth being in respect to the wearing of military uniform without lawful authority, the sentence being again one month's imprisonment.

In the third case, concerning William Shaw, registered as of Larne, Co. Antrim, L.R.C.P. Edin. 1886, L.R.C.S. Edin. 1886, who was cited to appear in respect of three convictions for being drunk, the PRESIDENT intimated that the convictions had been proved to the satisfaction of the Council. They took a very grave view of the scandal to the profession caused by these repeated convictions, but they accepted the respondent's assurance of a desire to amend and had decided to postpone pronouncing judgment for one year, when the respondent would require to produce satisfactory evidence to the Council as to conduct.

Alleged Case of "Covering."

The most important case was the last, that of Herbert Midgley Reeve, registered as of 1, Bournemouth Park-road, Southend-on-Sea, M.R.C.S. Eng. 1899, L.R.C.P. Lond. 1899, M.B. U. Lond. 1899, who was summoned to appear before the Council on the following charge: "That being a registered medical practitioner you knowingly enabled one Mary Ann Preece, whose name had been removed by the Central Midwives Board from the roll of midwives, to practise as a midwife in contravention of the provisions of the Midwives Act, 1902, as if the said Mary Ann Preece were duly certified under the said Act. And that in relation thereto you have been guilty of infamous conduct in a professional respect." The complainants were the Central Midwives Board.

Mr. BERTRAM, solicitor for the Central Midwives Board, explained that the Board was in charge of the whole body of midwives in England, and was entrusted with certain statutory duties for the purpose of purging the roll of midwives of unsuitable or dangerous practitioners. He did not suggest that this case could be described as the worst kind of "covering" case, and he did not suggest that Dr. Reeve was actuated by any base motive of achieving a large number of small pecuniary benefits at the expense of his fellow medical practitioners, but all the incidents inseparable to a really bad case of "covering" were there.

Mr. GEORGE ELLIOT, K.C., who appeared on behalf of the respondent, represented the case to the Council as an unfortunate error of judgment on the part of his client, who in the circumstances was entitled to their sympathy. Having regard to the high character of the man and the support and sympathy of those who knew him best and practised in the district, he urged the Council to take a lenient view.

After Dr. REEVE had given evidence it was decided that the case should be discussed *in camerâ* next day.

Sir JOHN MOORE said there was a desire for discussion as this was the first case of the kind.

The Council adjourned shortly after 6 o'clock.

THURSDAY, NOV. 4TH.

Resuming at noon to-day the Council spent some time in private consideration of the case against Mr. Herbert M. Reeve.

Strangers having been re-admitted, the PRESIDENT announced the judgment of the Council as follows:—

Mr. Reeve, the Council have considered the charge against you—namely, that being a registered medical practitioner you knowingly enabled one Mary Ann Preece, whose name had been removed by the Central Midwives Board from the roll of midwives, to practise as a midwife in contravention of the provisions of the Midwives Act, 1902, as if such Mary Ann Preece was duly certified under that Act. After consideration the Council find the charge against you to be true. You were in possession of the warning notice issued by the Council to the effect that "any registered medical practitioner who by his presence, countenance, advice, assistance, or coöperation knowingly enables an unqualified or unregistered person, whether described as assistant or otherwise, to attend or treat any patient, to procure or issue any medical certificate or certificate of death, or otherwise to engage in medical practice as if the said person were duly qualified and registered"—such registered practitioner is liable, upon proof of the facts, to have his name erased from the Register. That notice has been issued to all medical practitioners, is published in the Medical Register, and is known to the public. Notwithstanding that, you have been guilty of the charge which was the subject of our inquiry. The Council take an extremely grave view of an offence of covering of this nature, and particularly of covering the practice of unqualified or uncertified women, under whatever pretext they attend and treat women in labour. They hope that you now realise the gravity of the offence which you have committed. In order to give you time to consider very carefully your position with regard to it, and also to enable you to satisfy the Council that in the meantime your conduct and character in this and all other professional respects are beyond reproach, they have decided to postpone pronouncing judgment on the case until the next session of the Council, when you will be required to appear and satisfy us as to what your conduct has been in the interval.

Mr. Owen Charles Johnson, L.R.C.P. Edin. 1884, L.F.P.S. Glasg. 1884, and Mr. Morris Asher, L.R.C.P. Irel. 1882, L.R.C.S. Irel. 1882, who had neglected to effect registration until after the "appointed day" (June 30th, 1887) under the Medical Act, 1886, were admitted to the Medical Register.

Ethical Instruction.

The debate adjourned from Nov. 2nd on the proposal of Dr. Mackay, seconded by Dr. Macdonald, was resumed on the following motion by Dr. MCVAIL, seconded by Mr. VERRALL:—

That it be remitted to the Education Committee to report to the next meeting of the Council on the education of medical students in the ethical relationships of medical practitioners to the State, to their patients, and to each other.

Dr. MACKAY thought the motion as it stood on paper was rather vague. He took it that a medical man's duty to the State was well defined in definite laws, and that in the medical schools these laws were explained to the student in the classes of medical jurisprudence and public health. It was not a question at all of the possible ignorance of any practitioner as to his legal duty and responsibility. Ordinary rules of morality applied here as in every other case. The principles of ethical behaviour were as old as the New Testament, and these principles depended upon goodness of heart and gentlemanly feeling, which were summed up in the expression "Do unto others as you would have others do unto you." He should like to add that while they as medical men knew exactly the foundation of their medical etiquette, there were those among the public who thought differently, and were inclined to believe that medical etiquette was a system of rules which might be compared to a set of trade-union rules, designed for the purpose of enabling medical men to make as much as they could out of the public. These views, of course, were absurd; but he ventured to think that if they took any step suggesting that classes were required to teach medical morality they might be strengthening this foolish view. He did not think there was any real ignorance of medical ethics in the profession, though, unhappily, there were many men who did not live up to the code of ethics.

Dr. MACDONALD said he regarded it as a waste of time to send the motion to the Education Committee.

Dr. KNOX said he agreed with Dr. Mackay as to the uselessness of lectures on this subject, but he sympathised strongly with the underlying idea which had prompted Dr. McVail to submit the motion. For a good many years he was in the habit of giving Saturday morning lectures on matters relating to ethics and such things as the proper drawing up of reports, certificates, and so on. Consideration was necessary to some extent of these questions. The students he addressed were exceedingly keen on the subject. He suggested that Dr. McVail, with the pen of a ready writer, should prepare a small pamphlet on the subject. Students would eagerly buy it, and the information provided would not prove so fleeting as it might be when given in the lecture-room. Students were so much occupied with their technical work that he did not see how provision could be made for the subject in the curriculum.

Dr. CASH preferred the lecture idea to the pamphlet idea as being likely to make for more enduring knowledge on the part of the student. He believed the plan to be a thoroughly

feasible one. In his experience, students constantly came and said they wanted information on medical ethics. There were no more popular lectures than those on medical ethics. No harm would come of Dr. McVail's suggestion, and, perhaps, much good.

Dr. HODSDON moved an amendment after the words "Education Committee" to insert "with the addition for this purpose of Dr. McVail and Dr. Newsholme," and to add at the end "and that the Committee have power to make such inquiries upon the subject as seem advisable." He thought the motion opened up a case for inquiry.

Sir CLIFFORD ALLBUTT, in seconding the amendment, agreed that medical ethics should be inculcated at some stage of the student's career; but he would be sorry if a formal arrangement of this kind were to dilute or in any way diminish what was far more important—the medical tone of the whole institution. So much depended on the tone of loyalty and service which the lecturer carried into his work. That was the vital thing.

Dr. NORMAN MOORE said that most of the members of the Council who had spoken referred to the state of things which existed north of the Border. He did not know anything about medical ethics there, but in London there was certainly a rather different state of things. The student came into personal relations with the physicians and surgeons in the hospital, and the physician or surgeon cultivated these personal relations. He made a friend of his dresser or clinical clerk and almost invariably invited him to his house, so that all sorts of questions relating to the conduct of a man in his profession came to be discussed. This was the true and best way of instruction. It would be a waste of time for the student to attend a course of lectures on what would be his conduct in a great variety of cases, and considering the already over-burdened state of the medical curriculum, unwise.

Dr. NEWSHOLME said that so far as his department of public health was concerned the great majority of medical officers of health and practitioners in relation to public health were doing their duty to the State and to one another. His first impression was against Dr. McVail's motion, this being a matter of moral atmosphere in the medical school rather than a case for specific course of instruction. But although that was so, cases of difficulty arose in practice with regard to which the making of rules was important. These rules had a proper place. In the public interest he thought the attitude taken up by the doctor whom Dr. McVail had mentioned as having delayed notification until he was quite sure was quite wrong. The medical officer and the practitioner concerned were both sinning against ethical conduct in having brought matters to such a pass that it was necessary for the practitioner in self-defence in the future to postpone notification. Another serious matter came before medical officers of health. It was the delay in the diagnosis of obvious cases of diphtheria until the results of the swab examination had been found. During that period the patient had no antitoxin and died owing to the 48 hours' delay. This was a serious danger at present. Hundreds of lives were lost every year in this country owing to this delay in verifying the diagnosis. He would support the reference to the Education Committee in a very general form not only in relation to students but to practitioners. What a student learned in the medical school he was apt to forget afterwards, and he suggested that the committee should consider whether a small pamphlet of two or three pages could not be produced laying down rules of action in difficult cases.

Dr. SAUNDBY said that he had given a course of lectures in Birmingham, but the students did not attend, being probably too busy otherwise. He should be glad to see something done in order to bring home these questions to the students.

Sir JOHN MOORE, in resisting the motion, said that to add another course to the curriculum on a subject like medical ethics would be most unfair to the students. Medical ethics ought to be taught and were taught in the hospitals and medical schools. He thought the Education Committee might very well occupy themselves otherwise.

Sir THOMAS FRASER asked whether a man required to be told, for instance, that it was wrong in the present crisis, when the places of men who went abroad were temporarily filled by others, to take advantage of his position. He could not conceive what a course of lectures would do, unless it was to make a man conduct himself in a proper way. The importance of that he already knew. If the students were in a proper atmosphere they would not lag behind other professions. He was strongly of the opinion that it was almost an insult to the profession and to the students for that Council to take up the position that their young men in medicine required their morality improved by special instruction in ethics.

The mover and seconder of the original motion having agreed to the insertion in the resolution of Dr. Hodsdon's amendments,

Dr. LATIMER moved an amendment to omit the words "to the State." It was evident, he said, that any man would be benefited by having some instruction in ethical affairs.

Dr. LANGLEY BROWNE seconded.

On a show of hands Dr. Latimer's amendment was defeated.

Sir HENRY MORRIS reminded the Council that Dr. McVail had clearly pointed out that owing to recent legislation and recent methods of practice difficult questions did arise, and unless instruction was given it was not easy for young medical men just entering the profession to know how to conduct themselves. With regard to the case which had been mentioned, the point that Dr. McVail had wished to bring out was that the delinquency, which required correction by means of instruction, was not so much that of the practitioner who had been badly mauled and handled, but the conduct of the individual who mauled and handled him—namely, the medical officer of the hospital where the case was sent for diagnosis.

Dr. NEWSHOLME: I should make it perfectly clear that I think there were faults on both sides in the case mentioned by Dr. McVail.

Dr. MCVAIL, in replying to the debate, pointed out that the motion said nothing about the desirability or undesirability of lectures, nothing about whether if there were lectures they should be compulsory or voluntary, and nothing about whether the correct course would be to issue a small pamphlet on the subject or issue rules. Everything would depend on the report of the committee. His desire was to get the facts ascertained as to what was being done in the various medical schools. When the facts were ascertained the Council could resume the discussion. In his remarks he deliberately went outside the terms of the motion to indicate what might be the subjects which would come up for discussion on the report of the committee. As he understood his remarks, Sir Thomas Fraser regarded it almost as an insult to the medical profession that the motion should be carried or that there should be education in medical ethics. He had no words to express his feelings at this description of a proposal to give a young student entering on his medical studies some instruction in medical ethics, and he was sorry it should have been used by Sir Thomas Fraser at the last meeting of the Council which he was to attend. He agreed with what Sir Henry Morris had said about the particular case to which he (Dr. McVail) had referred in his opening remarks. His duty in that case was to reprimand very slightly the medical attendant, but to reprimand very severely the medical officer of the hospital. It was really the latter who was to blame.

On a show of hands the motion was approved, but Sir Henry Morris demanded a count, and it was carried by 22 votes to 8.

(To be continued.)

DORSET COUNTY ASYLUM.—Mr. P. W. Macdonald, M.D., C.M. Aberd., J.P., has resigned the appointment of medical superintendent of the Dorset Asylum, Herrison, near Dorchester, owing to ill-health, after 32 years' connexion with the institution.

DEATH OF LIEUTENANT-COLONEL ALEXANDER TURNER, A.M.S. (RETIRED).—Lieutenant-Colonel Turner died suddenly at his residence in Plymouth on Oct. 31st in his seventy-fifth year. The deceased, who received his medical education at the University of Aberdeen, graduated M.B. and C.M. in 1862, taking the M.D. in the following year. He shortly afterwards entered the Army Medical Department, retiring some years ago with the rank of lieutenant-colonel. He had resided for some time at Plymouth, and was much respected there.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 13, 1915.

Gunshot Injuries of the Peripheral Nerves.

RATHER more than 50 years ago—the exact date was May, 1863—the Surgeon-General of the United States army, recognising that the Civil War was producing a very large number of cases urgently calling for special treatment, ordered that certain wards should be set aside for the treatment of injuries to the nervous system in the United States Army Hospital, Philadelphia. The three young acting assistant surgeons appointed to these wards were Dr. S. WEIR MITCHELL, Dr. GEORGE R. MOREHOUSE, and Dr. W. W. KEEN. A year later they published a modest volume entitled "Gunshot Wounds and Other Injuries of Nerves," embodying their experiences and investigations in a hitherto little-studied group of neurological cases. A re-perusal of this book in the light of the knowledge gained during the present conflict and summarised in a comprehensive fashion at the recent discussion on the subject by the Medical Society of London[1] provides interesting and instructive contrasts, and not a little food for thought.

In the diagnosis of peripheral nerve injuries there is perhaps comparatively little room for improvement. Painstaking investigation of the motor and sensory phenomena will enable the physician to distinguish a trunk or a plexus or partial plexus injury, as the case may be, and will at the same time rule out hysterical or "functional" symptoms. No real difficulty should be encountered in making this differential diagnosis, although the possibility of the superposition of functional on organic signs is not to be lost sight of. Concomitant trophic changes in the skin and its appendages, and certain vasomotor and sympathetic phenomena accompanying nerve injuries, were recorded so faithfully by the writers of 50 years ago that the discussion at the Medical Society added little, if anything, to descriptions that have become classical. To-day, however, we elaborate our diagnoses rather more than they did. Dr. WILFRED HARRIS says it is quite possible to give a fairly accurate opinion on the condition of a peripheral nerve, as to whether it is completely destroyed, partially cut, or only slightly involved in scar tissue, and as to whether an operation on the nerve is advisable or not. Further, we speak now of the possibility of localisation of certain motor and sensory strands in peripheral nerves, and Dr. HARRIS cites a case which goes to prove that the nerve fibres which supply the posterior or dorsal areas of skin run in the dorsal bundles of the nerve. Though comparatively scanty allusion was made in the discussion to the question of what might be called the internal anatomy of nerve trunks, the important recent investigations of STOFFEL may be referred to in passing, as they demonstrate clearly that a peripheral nerve must be regarded simply as an aggregate of separate twigs, united together by numerous anastomoses, forming an "internal plexus" of the nerve. The practical bearing of this matter of internal localisation is obvious, both for nerve injuries and for orthopædic surgery. There can be little doubt, we think, that the main advances which the half century has seen concern more particularly the surgical treatment of gunshot wounds of the nerves. The American writers already referred to described every conceivable form of nerve injury, so remarkable a series not having been collected before in medical history, and they fully realised that the time was past for regarding them as "curiosities and matters for despair"; on the contrary, the systematic treatment of nerve injuries was furthered by every means in their power. Yet it is a fact that surgical treatment, such as exploration, the freeing from cicatrices, nerve suture, and so on, is not so much as mentioned in their book. Electricity, "shampooing with frictions," "kneading," hydrotherapy, douching, passive movements, are some of the methods they employed, and with success, but modern treatment relegates these to a secondary, though still important, position.

"In cases of complete nerve division there is no question of the procedure to adopt," says Mr. JOCELYN SWAN in his valuable contribution to the debate at the Medical Society, and Mr. WILFRED TROTTER points out that to begin to collect and collate results, for neuronic regeneration is tantalisingly slow. Nevertheless, there is sufficient clinical evidence forthcoming both in England and in France, as recent communications to the Académie de Médecine[2] reveal, to establish the fact that nerve suture is sometimes followed by brilliant results. The American trio closed their book in the following words: "No class of case with which we have been called to deal seemed to us, at one time, so sadly hopeless as injuries of nerves: none has better rewarded enduring and steady efforts to afford relief. We look back with unfeigned pleasure upon the great number who came to us, despairing cripples, and have left us eased of pain, and either entirely well or so far aided as to enable them to employ their limbs in useful occupations." To-day we recognise once more with gratitude the splendid example shown half a century ago by the American authorities in organising special hospitals and in utilising the services of experts to deal with differing types of war injuries, and if at the end of this greatest of all wars we also, as a profession, can "look back

[1] THE LANCET, Nov. 6th, 1915, pp. 1021-1023, and present issue, pp. 1073-1081.

[2] THE LANCET, May 15th, 1915, p. 1039.

with unfeigned pleasure" on the results we obtain in nerve injuries, with so many improved methods of procedure at our disposal, we shall have reason to congratulate all, both military and civilian, who have collaborated towards that desirable end.

The Re-education of the War-Cripple.

THE "war-cripple" is a crude and ugly appellation, but we have no word corresponding to the French *grand-blessé*, *estropié* or *definitif mutilé* to denote the man who has been so much impaired by his wounds that he cannot resume the occupation that was his prior to the war. The term "wounded," as employed in the casualty list, is a very wide one, covering an injury in which no prospect of useful life remains—a living death and also the trauma produced by the modern solid infantry bullet at medium speed which has not struck bone or vital organ—a trauma so slight as scarcely to produce disablement at all and enjoining a brief absence only from the fighting line. The latter type of injury, so common in open field fighting, is rare, alas! in the present trench warfare, where the few bullet-wounds are generally in the head and where the vast majority of the sufferers are felled by shell or hand-grenade. For a severely injured victim much may be done to palliate discomfort and suffering, and after hospital and convalescent home have played their part he may have an existence free from suffering though still incompatible with useful activity. But in between the two extremes of "wounded" included in the casualty list is a large group in whom the loss of a limb has made return to the old pre-war employment impossible; the ploughman with one leg amputated can no longer plough, the clerk with one arm lost can no longer typewrite, the miner can hardly return to the mine short of any of his four limbs. But though career and means of livelihood may be thus cut short, yet the wounded man has not lost his chance of a useful existence. Granted opportunity of re-education, of education on new lines for some fresh career within his physical ability, he still has the future of a valuable citizen. In France a concerted attempt is being made to achieve this re-education, as the pages of the book before us testify.[1]

On the initiative of Mons. EDOUARD HERRIOT, mayor of the city of Lyons and senator of the Rhone, a conference was held towards the middle of November, 1914, to consider in what way mechanotherapy could help the wounded soldier, and at this conference the idea—then new in France—arose of starting schools for instruction in a new career, a sort of apprenticeship at adult age. A letter in the Paris *Journal* of Nov. 23rd developed the scheme to "recueiller les mutilés definitifs incapable de continuer leur ancienne profession, et de leur en apprendre une nouvelle," as "un par un, la guerre nous révèle nos nouveaux devoirs." On Nov. 30th the municipal council of Lyons authorised the scheme, and on Dec. 16th the first three pupils were received. The conditions of admission were hospital discharge as cured with incapacity for further military service. By the end of August, 1915, the number of pupils in Lyons alone had risen to 200 in two schools, and a third school was projected. Of these 200 pupils, 97 had undergone amputation of a lower limb, 48 of an upper limb, and the remainder some other permanent mutilation. It was decided at the outset only to admit definite cures and not to attempt to combine the treatment of obstinate conditions with the lessons of the new instruction. Three alternatives had been considered by the promoters: (1) To send the men straight into the workshops; (2) to teach them in day schools whilst they continued to live at home; and (3) to imitate the boarding school. Only the last alternative appeared to them likely to succeed in combining systematic tuition with the necessary constant control and encouragement. Apprenticeship is not a very easy state after youth is passed, and it requires skilled teachers and tactful management to make it possible and effective. Dr. CARLE sums up in a single admirable sentence the result when obtained: "Après les angoisses des tranchées, après les horreurs de la rencontre où ils furent blessés et abandonnés, souvent plusieurs heures, entre les deux camps, après les opérations, les pansements et la douceur un peu démoralisante des longues convalescences hospitalières, ils sont, pour la première fois, mis en présence d'un effort à accomplir, qui doit engendrer une œuvre, si minime qu'elle soit; et il est à la fois curieux et touchant de constater la surprise joyeuse qui accueille la première production." And he adds: "J'ai assisté là à de vraies résurrections." The subjects taught include book-binding, shoemaking, tailoring, carpentering, book-keeping, and horticulture. All these are occupations which can be practised in the city and in the smallest village, making it possible to comply with the Frenchman's one desire, no matter where he lives, to be able to return "chez soi." To these was added an industry almost new to France, that of toy-making, all the French toys, like the English, having borne the mark "made in Germany," with the sole exception of the "tin soldier," which is essentially a French product. And in the preface to the book the mayor of Lyons gravely thanks a well-known artist for the kindness to which he owes the model of "un Guillaume II. grognon qui fera, j'en suis sûr, la joie des petits Français."

We have dwelt long on this French experiment in the re-education of the war-cripple because it has passed the initial stage of experiment, and the difficulties revealed by the first efforts are now being tackled. Starting with the single school with three pupils at Lyons, the scheme has grown

[1] Les Ecoles professionnelles de Blessés, par le Dr. M. Carle, Médecin-chef des Ecoles, 2me edition. Paris: J. B. Baillière et Fils, 1915.

there, as we have seen, to large proportions, and the good contagion has spread to Paris, Bourges, Montpellier, Saint Etienne, Bordeaux, Toulouse, Pau, Marseilles, and a host of smaller centres, while inquiries have flowed in, not only from all parts of France, but also from Italy, Canada, Japan, and this country. Many of the conditions that have been made the subject of the French undertaking are special to France, and each country will have to tackle its own problems in its own way. But there is no doubt that France, and the city of Lyons in particular, have given the lead in one of the most merciful and practical pieces of regenerative work attempted in the present conflict. We call the attention of all who have to do with war-cripples to Dr. CARLE'S most important pioneer work in which he sets himself the lofty task of compensating the men for their physical loss by aiding them to a higher intellectual and moral level. This is a task which may well command the study and resources of every official and unofficial agency.

Annotations.

"Ne quid nimis."

THE BRADSHAW LECTURE ON NERVOUS AFFECTIONS OF THE SIXTH AND SEVENTH DECADES OF LIFE.

THE subject chosen by Professor J. Michell Clarke for the Bradshaw lecture is one that will be of interest not only to physicians, but to general practitioners, who in the course of their ordinary professional duties will be constantly brought into contact with many of the conditions considered therein. Professor Clarke first pointed out that, although the period of the greatest activity of the originative and creative faculties is over by 50, yet the ensuing years are those in which experience is ripe and judgment most sound. A study of the diseases, therefore, which tend to curtail or to destroy the usefulness of these years is an important one and will commend itself to all engaged in the practice of medicine. The pathological changes occurring in the heart and vessels are more generally understood than the morbid conditions of the nervous system which occur during the sixth and seventh decades of life, and the disorders of the two systems naturally overlap. For this reason the disorders of the brain are more common than those confined to the spinal cord, as is shown by the great frequency of cerebral hæmorrhage and thrombosis after 50. Such lesions, strictly speaking, are not primarily nervous diseases, but their results are shown by the hemiplegia and other nervous phenomena which are produced. Professor Clarke further remarked that disease of the vessels materially affects the course of most nervous affections during this period. An important conclusion to be drawn from a study of the nervous affections which occur between the ages of 50 and 70 is that this period compares favourably with that of either childhood and adolescence or the age from 25 to 50. There are two etiological factors which are prominent in effecting this difference, one is that the incidence of nervous diseases due to infections and intoxications is much less after the age of 50 than in early life, and the other is that at this same period the chances of the occurrence of cerebro-spinal syphilis are comparatively slight. Professor Clarke referred at length to the diseases of the spinal cord and of the brain which occur after 50, and showed that comparatively few are especially characteristic of this period of life. Amongst these must be mentioned the combined scleroses of the spinal cord. In some of these symptoms due to diseases of the lateral columns predominate, in others the posterior columns are chiefly affected, and the degeneration may be found in cachectic states, in carcinoma, in glycosuria, or in diabetes. Again, certain muscular atrophies of central origin may present themselves—progressive muscular atrophy, bulbar paralysis, and amyotrophic lateral sclerosis are relatively frequent after 50 years of age. Certain of the neuroses must also be mentioned, prominent amongst which is paralysis agitans, which, though not a very common disease, is pre-eminently one of a late period of life. Likewise worthy of note is the severe form of neuralgia which in the elderly follows herpes zoster. A patient suffering from herpes in later life rarely escapes without subsequent neuralgia, often lasting for months, and as sometimes the group of nerves affected is an extensive one the general strain on the patient may be a severe one. Professor Clarke may be congratulated on having delivered a lecture full of practical information drawn from a large personal experience, and on having collected together a large mass of material which is usually only found scattered through medical literature.

TYPHUS FEVER IN SERBIA.

A STRIKING feature of the medical history of the present war is the large amount of research work which has been carried out notwithstanding the severe pressure of daily routine work, and this not only in the comparative leisure of the well-equipped base hospitals of the Western front, but even in the hard-pressed Serbian hospitals. The bacteriological investigation of typhus fever carried out by Dr. W. W. C. Topley[1] in the laboratory attached to the British Military Sanitary Expedition at Kragujevatz is a striking example of this. Dr. Topley investigated a considerable number of typhus cases by both microscopic and cultural methods in the hope of finding the still undiscovered cause of the disease. He agrees with previous investigators on the blood changes which occur; amongst these the increase in large mononuclear cells is perhaps the most striking and suggestive, as it would indicate a protozoal rather than a bacterial infection. The blood cultures in a large proportion of the cases examined yielded an organism which was thought to show striking similarities with organisms isolated from cases of typhus by other observers. As described by Dr. Topley, it is a Gram-positive diplococcus growing aerobically by preference, with a strong tendency to produce in cultures, either as a stage of pleomorphism or as a process of degeneration, minute Gram-negative coccal and bacillary forms which finally become mere masses of granular material. The question as to whether the production

[1] A Report on a Bacteriological Investigation of Typhus Fever during the Serbian Epidemic of 1915, by W. W. C. Topley, M.B.Cantab., M.R.C.P. Lond. (late Temporary Captain, R.A.M.C.), Bacteriologist to Charing Cross Hospital, Journal of the Royal Army Medical Corps, vol. xxv., p. 215, August, 1915.

of these small forms represented degeneration or a stage in the life-history of the organism was carefully investigated, but with no decisive results, though Dr. Topley seems to incline to the idea of degeneration; they cannot be subcultured. Another point still under investigation concerns the possible relationship of this diplococcal organism to the anaerobic bacillus isolated by Plotz and regarded by Dr. Topley as having strong claims to be considered the cause of typhus. Fortunately, though the exact cause, whether protozoal or bacterial, of this disease which has proved so deadly to armies in many campaigns remains uncertain, yet the method by which infection is usually spread is beyond doubt, and methods of prophylaxis based on this knowledge have secured the limitation and suppression of a disease against which a short time ago the medical officer was powerless.

WIVES AND MOTHERS.

THE increased and increasing importance of the preservation of the lives and the health of young children in view of the depletion caused by the war, and the bearing of the drink question upon the subject, were illustrated in the recent prosecution of two soldiers' wives at the Marylebone police court. One of them, Bright, had seven children, and the other, Holden, had six. They together occupied two rooms about 13 ft. square, in company with another woman, her one child and a dog. The children were filthy and neglected, those of Bright being said by a medical witness to be all suffering from itch and enlarged glands. He had found them huddled together in an unbearable stench on a dirty bed and some rags. The defendants named were squandering their money on drink, their combined incomes being described as amounting to over £200 a year. Bright was sentenced to three months' and Holden to two months' imprisonment for wilful neglect of the children.

THE RELATIVE FREQUENCY OF VENEREAL DISEASE AMONG MEN AND WOMEN.

A Royal Commission appointed in Sweden in 1911 to investigate the social problems in connexion with venereal disease has issued its report in the *Svenska Läkaresällskapets Handlingar* (vol. xli., No. 3, 1915). This report occupies 104 pages, and includes many proposals of far-reaching importance. Among the appendices to the report is an interesting calculation by F. Block, who argues that women are greater offenders in spreading venereal disease than men. He prefaces this contention with the assumption that in the vast majority of cases infection is carried from man to woman or woman to man, infection between members of the same sex being rare. In 1914 there were 1426 men and 688 women in Sweden notified as suffering from syphilis. In other words, 688 women infected 1426 men or were infected by them. To put it in another way, 10 women infected or were infected by 21 men. This disproportion between the sexes did not exist in the country districts, where an equal number of men and women were infected. In the smaller towns the proportion was 10 women to 24 men, and in the larger towns 10 women to 21 men. The figures for gonorrhœa were even more striking, the proportion being 10 women to 31 men. This proportion, in the case of gonorrhœa, was practically the same in the large towns as in the country districts; but in the smaller towns the proportion was 10 women to 62 men. The disproportion between the two sexes was still more striking in the case of ulcus molle, but the figures were too small to be convincing. One conclusion to be drawn from these figures is that more men than women expose themselves to infection, and that it is important for men in particular to be warned of the risk they run. The figures may also possibly be interpreted as showing that women are more unwilling to undergo medical treatment than men; and, if this is so, the woman's capacity to transmit the disease is relatively great. It may safely be assumed, according to the author of this appendix, that many, perhaps most, women suffering from venereal disease either do not infect anyone or only one man. There is, however, a minority of infected women who infect a greater number of men than the figures already given indicate. It is in relation to this minority that the term "mass infection" may legitimately be used, and it is against this minority that the public must adopt the most energetic measures. Men may also, but less often, be the cause of "mass infection," in which case they should also be compulsorily controlled by systematic recurrent examination and isolation. Dr. Block is in favour of differential treatment between town and country, as far more radical measures are required for the former.

THE OCCURRENCE OF ZINC IN DRINKING WATER.

IT does not appear to be generally known that zinc is invariably found in the majority of waters which have passed through galvanised-iron pipes. It is reassuring to learn, however, from a communication which we publish this week from Dr. John C. Thresh that the quantity of zinc dissolved contributes no harmful property whatever, and in his view the statements made about the injurious effects of small quantities of zinc in potable water are entirely without foundation. As far back as March 1st, 1884, THE LANCET published a note on the occurrence of as much as 6·41 grains of zinc carbonate per gallon in a drinking water supplied through about half a mile of galvanised-iron pipe from the source to a Welsh village, but no reference was made in this case to any ill-effects having been observed, although the matter was in the hands of the medical officer of health. The water at the source contained no zinc and only 10·8 grains per gallon of total solids. At the point of delivery, however, the total solids were increased to 18·9 grains, the increase being largely due to the amount of zinc taken up. It is to be noted that Dr. Thresh confines himself to refuting the statements as to the injurious effects of *small* quantities of zinc, and in the results he records that the amount of zinc found did not exceed 2 grains, while in most cases it rarely amounted to more than 0·8 grain per gallon calculated, we presume, in terms of metal. Broadly, one part of zinc would be equivalent to two parts of the carbonate, so that the water mentioned in THE LANCET of 1884 would contain 3·2 grains of metallic zinc, the equivalent of 6·41 grains of the carbonate. This quantity exceeds that detected in any case by Dr. Thresh. In the case of a water found to contain 2 grains of zinc per gallon its use was sanctioned. This water has been the sole supply for the hamlet, and the medical officer of

health was assured that the water was quite wholesome. Later the quantity of zinc dropped to 1·6 grains per gallon, and no case of illness in the hamlet could be traced to the water, nor was there any evidence that either children or adults suffered more from constipation or from intestinal irritation than persons residing elsewhere. The amount of zinc present in a water varies considerably, the chief factor being the time which the water has been in the pipe. It is possible, also, that the amount of dissolved carbonic acid gas in the water is equally important, as carbonated water readily dissolves the metal. It does not seem desirable as a general principle to disregard metallic contamination of drinking supplies, unless that contamination consistently takes place within the very narrow limits found to be the case in the water-supplies Dr. Thresh examined. At any time it is conceivable that the zinc for some unsuspected reason may increase, and there are possibly limits of toleration. Zinc, however, hardly ranks amongst metallic poisons in the ordinary sense, though strong doses of its salts, as, for example, the sulphate and the chloride, are respectively powerfully irritant and corrosive. Dr. Thresh is probably right in his conclusions based on the invariably minute quantities of zinc found in drinking waters.

GASTRIC ULCER.

AT the annual meeting of the American Medical Association Dr. William J. Mayo epitomised the recent advances which surgery has contributed to our knowledge of gastric ulcer. He pointed out that ulcer of the stomach is more serious but less frequent than ulcer of the duodenum. It is the more serious because of the resulting deformities which permanently cripple the stomach. The mechanical condition can be relieved by operation, but the function of the stomach is often more or less permanently impaired. On the other hand, in duodenal ulcer the gastric functions are not disturbed, and after gastro-enterostomy are performed efficiently. Acute perforation is less common in gastric than duodenal ulcer, but in the former there is less probability of the ulcer being protected by adhesions, and the possibly considerable contents of the stomach, which are much less sterile than those of the duodenum, may escape. There is therefore a greater chance of general septic peritonitis. Hæmorrhage occurs with the same frequency in gastric and duodenal ulcers, but in the stomach it may be due to gastrostaxis—i.e., not ulcer. Dr. Mayo considers that the large majority of severe hæmorrhages from the stomach, which are not preceded or followed by the ordinary symptoms of ulcer, are due to this cause. In gastric ulcer there is the ever-present danger of cancer developing, to which duodenal ulcer does not appear liable. Finally, the operations for gastric ulcer are more serious and attended by a higher mortality than those for duodenal ulcer. In a considerable percentage of cases the differential diagnosis between the two conditions is not possible before the advent of radioscopy. In duodenal ulcer hyperperistalsis of the stomach and deformities of the cap, and, if obstruction exists, bismuth retention, are as typical almost as the niche and the hour-glass and other deformities in gastric ulcer. Usually the pain in duodenal ulcer begins later than in gastric ulcer and radiates to the right; in gastric ulcer it may radiate to the left. When posterior adhesions of gastric ulcer exist pain in the back is a frequent symptom. Both ulcers are more frequent in men than in women, the proportion in gastric ulcer being 71 to 29; in duodenal ulcer 83 to 17. Opinions as to the cure of gastric ulcer by medical treatment are based on the frequent cessation of the symptoms. If, however, an operation is performed in the quiescent interval the ulcer is found cicatrised but unhealed. While not contending that every gastric ulcer should be treated surgically, Dr. Mayo thinks that if permanent cure does not take place within a reasonable period surgical treatment should be adopted.

EARLY OPERATION FOR GALL-STONES.

IN this country the usual practice is to treat gall-stones by medical measures in the first instance, and not to resort to operation until the condition of the patient becomes serious in consequence of invalidism or complications. On the other hand, in America and on the continent early operation is in favour. In the *Boston Medical and Surgical Journal* of Sept. 23rd Dr. J. C. Hubbard has put forward a strong plea for operation as soon as the diagnosis of gall-stones is made. In a series of 220 operations for gall-stones at the Boston City Hospital 31 of the patients died. Their deaths could be attributed to the fact that they were all more seriously diseased than the patients who recovered. This was shown by the greater frequency in them of chills, enlarged liver, or a palpable mass in the region of the gall-bladder. The condition of the gall-bladder and the situation of the stones also showed more advanced disease. In 8 of the 31 cases the bladder was inflamed, necrotic, or perforated, or contained pus. If the stones had been removed before the secondary changes were induced, the operation would have been less severe. In 16 of the 31 cases the stones were in the ducts. Removal of a stone from the common duct is a more severe operation than removal from the gall-bladder. Further proof of the advantage of early operation was furnished by the records of cases in which gall-stones were found post mortem. These were mostly cases from the medical wards, for in the cases from the surgical wards the stones usually had been removed ante mortem. The cases numbered 108. In 76 the stones were found in the gall-bladder only, and in 9 of these death was due to the presence of the stones, the causes being hepatitis, cancer of the gall-bladder, pancreatitis, and abscess of the liver. In 32 cases stones had passed from the gall-bladder into the ducts. In 14 of these death was due to gall-stones, the causes being hepatic abscess, peritonitis, and cholecystitis. Thus, stones in the gall-bladder killed 11 per cent. of those who had them, while stones in the ducts killed 43 per cent.—a strong argument for operating while the stones are in the gall-bladder. Dr. Hubbard concludes that as soon as the diagnosis of gall-stones is made the medical attendant should, subject to possible complications, advise operation.

THE USE OF UNLEAVENED BREAD.

THE fear of an exacerbation of the wheat crisis in Italy has interested not only those concerned in the manufacture of bread but also medical hygienists in the search for an economical bread. The harm resulting from leavening bread has been made a special study by Professor A. Romano

in the *Giornale della Reale Società Italiana di Igiene* for July. He states that the process of leavening makes bread too soft and renders it liable to be badly masticated and imperfectly mixed with saliva, especially when taken in milk or soup or dipped into various liquids according to prevailing Italian custom, when it is apt to be rapidly swallowed. The digestion of bread under these conditions is more or less imperfect, even though it does not necessarily reach the point of causing dyspeptic symptoms, and it is assimilated in less proportion to what it would be in normal circumstances. Moreover, the added yeast preserves part of its activity even after baking, and continues to ferment in the stomach, giving rise to the production of acetic and lactic acids, among other substances, which are harmful to those subject to an irritable state of the mucous membrane. Professor Romano insists, therefore, that the use of white leavened bread is a serious error in alimentary hygiene, while it also constitutes an enormous loss in domestic and national economy. He advises that bread should not only be made with whole meal, but that it should not be subjected to the process of leavening. Lest it should be thought impossible to manufacture a wholemeal bread without leavening which would satisfy the taste, he mentions that such bread has been for some time on the market abroad, and in regard to flavour has met with entire approbation; some of the bread has been made with the minimum quantity of yeast. Although the matter has been for a long time under consideration and special forms of improved mill invented which facilitate a finer subdivision of the bran, the methods of grinding and making bread in Italy are the same as those in use for the production of flour for the white bread ordinarily in use, and the problem has not been as yet technically solved. The question may eventually become important in the United Kingdom, and it is to be hoped that the matter will receive the attention it deserves and a satisfactory solution be found.

THE Nobel Prize for medicine for 1915 has not been awarded. That for 1914, of the value of about £8000, has been awarded to Dr. Robert Bárány, of Vienna University, for his work on the physiology and pathology of the vestibule of the ear.

THE President of the General Medical Council has been requested by the Council to inform the licensing bodies, medical schools, and approved teaching institutions that the Director-General of the Army Medical Service has intimated to the Council his entire agreement with Lord Derby's decision regarding the recruiting of medical students—namely, that "it is the duty of medical students (other than those in the fourth and fifth years of study) to join His Majesty's forces." The President hopes that in every medical school steps will be taken to convey this information to the students who are eligible for military service.

MEDICAL MAYORS.—The following members of the medical profession have been elected or re-elected to the mayoral chair: Bootle, Mr. James Pearson, M.R.C.S., L.R.C.P. Lond.; Bristol, Mr. Barclay J. Baron, M.B., C.M. Edin. (Lord Mayor); Canterbury, Mr. R. A. Bremner, M.R.C.S., L.R.C.P. Lond.; Cardiff, Mr. R. J. Smith, M.B., B.Ch. R.U.I., D.P.H. (Lord Mayor); Faversham, Mr. S. R. Alexander, M.D. Lond.; Leamington, Mr. Miles H. C. Atkinson, M.D., M.Ch. R.U.I.; Saffron Walden, Mr. J. Parkinson Atkinson, M.D. Glasg.

ZINC IN POTABLE WATER.

HAS IT ANY EFFECT UPON HEALTH?

BY JOHN C. THRESH, D.SC. LOND., M.D. VICT., F.I.C., &C.,
MEDICAL OFFICER OF HEALTH TO THE ESSEX COUNTY COUNCIL.

WITHIN the last few months the question of the effect upon health of small quantities of zinc in potable waters appears to have become a matter of some importance, since I have been consulted on several occasions recently with reference thereto by both military and civil authorities. The views held generally caused me great surprise, as apparently it is not known that zinc is found in nearly all waters which have passed through galvanised iron pipes, and therefore is frequently found in potable waters if sought for, and it is also generally believed that its presence in water, even in small quantities, is likely to prove injurious to health.

Few analysts take the trouble to test for zinc, and as to its effect upon health the text-books either make no reference to it or state that it is an undesirable constituent. In one text-book on toxicology there is an account of an outbreak of acute intestinal irritation which occurred in one of our Dependencies, and which the medical attendant attributed to the presence of zinc in the water used by the patients. Had the water contained 20 times as much arsenic as it did zinc it is doubtful whether it would have caused such serious illness, and the possibility of there being any other cause for the illness is not even referred to. In a recent issue of a sanitary journal a writer states that "zinc, though not so poisonous as lead, may cause serious symptoms of irritant poisoning to persons drinking water in which it is dissolved."[1]

Galvanised iron pipe is used in enormous quantity for service pipes conveying water from the mains to supply consumers, and as practically every natural water acts more or less vigorously upon the zinc lining of such pipe, there ought to be no difficulty in discovering the effects of the metal, assuming these are of a deleterious nature. I have never heard of a water containing zinc possessing any irritant properties. In my work on "Water Supplies" will be found recorded a case where a water containing about 3 grains of carbonate of zinc per gallon appeared to have caused *constipation* in some young children using it. It had no effect upon the adults in the establishment. I have never heard of any irritant effects, although I have made inquiries amongst a large number of families who for many years have used water containing very appreciable quantities of zinc. In connexion with a case which recently came before a divisional bench, appealing against the decision of a local sanitary authority which had refused to grant a certificate for the occupation of a group of recently erected cottages because the water contained from 0·1 to 0·2 grain per gallon of zinc, the magistrates after hearing the evidence ordered the authority to grant the certificate and mulcted them in £50 costs. In connexion with this case Dr. R. A. Lyster, medical officer of health of the county of Hampshire, in which county the case arose, collected a number of samples of water from different parts of the county where galvanised iron service pipes are in use and found zinc in all,

[1] No proof is adduced of this extraordinary statement, nor have I ever heard any proof beyond that of the utterly improbable outbreak referred to above.

on occasions the amount exceeding that found in the implicated water. In many instances the water had been in use for years and, even in large establishments where any effect would be most likely to be observed, no suspicion of any harmful effect had ever been raised.

In connexion with this case I selected a number of places in different parts of Essex where I knew the water contained appreciable quantities of zinc and where such water had been used continuously for long periods. Samples of water were collected and inquiries made of the consumers, of the local medical practitioners, and the medical officer of health. Where the water contained an unusually large quantity of zinc I made inquiries at each house using it and saw most of the members of the family, especially the children. There was not a tittle of evidence forthcoming that the water caused intestinal irritation, or constipation, or any other recognisable effect.

The amount of zinc present in potable waters which have passed through but short lengths of galvanised iron service main rarely amount to one-tenth of a grain per gallon, but the waters concerning the effect of which my inquiries were directed contained from one-eighth to about two grains per gallon. The following may be cited as examples of water which has passed through considerable lengths of zinc-coated piping :—

Premises supplied.	Length of galvanised-iron service pipe in yards.	Amount of zinc present in grains per gallon.
1. Farm and cottages	400	0·8
2. Railway station and cottages	900	0·8
3. Farm and cottages	830	0·5
4. Rectory	400	0·3
5. Farm and cottages	800	0·5
6. ,, ,, ...	400	0·3
7. ,, ,, ...	700	0·6
8. ,, ,, ...	900	0·6
9. An isolation hospital	450	0·3
10. Group of cottages...	600	0 07
11. A mansion	400	0·12
12. Factory and houses	100	0·8
13. Farm premises	100	0 25
14. Small hamlet	700 to 1000	0·7 to 1·6

The amount of zinc found in these waters varies considerably, the chief factor being the time which the water has been in the pipe. In all the above cases, except No. 14, the water was taken in the early morning, and in a few instances may be above the minimum, or even above the average, but in No. 14 the amounts represent the average, or may even be below the average, and is therefore worth further consideration as the amount of zinc present is unusually large.

The hamlet in question is on the London clay, and until 1905 water was only obtainable at a considerable distance. In that year a public supply was inaugurated, the water being obtained from a spring on the hill side nearly 1000 yards away. This water was collected in a galvanised iron tank and conveyed through galvanised iron pipes to supply a farm, nine cottages, and a public elementary school. When the works were completed a sample of the water taken from one of the three standpipes erected was sent to me for examination. I found that it contained approximately two grains of zinc per gallon, and I pointed out to the medical officer of health that this was an unusual quantity, and that it might cause constipation amongst children using it. I sanctioned its use, at the same time expressing the opinion that the amount of metal in the water would decrease. Since the date above mentioned this water has been the sole supply for the hamlet, and the medical officer of health always assured me the water was quite wholesome. In October last I obtained a sample and found that it contained 1·6 grains of zinc per gallon, the sample being collected during the afternoon from the standpipe farthest from the spring. I wrote to the medical man practising in the neighbourhood and he assured me that he had never had any case of illness in the hamlet which he could attribute to the water, nor did he think either children or adults suffered more from constipation or from intestinal irritation than persons residing elsewhere. I visited the hamlet and saw every man, woman, and child who could be found, and I collected samples of water from two hydrants, one the nearest to the spring and the other the farthest away. The time was 11 A.M., and I was assured that most of the day's supply had then been drawn. The water from the former was subsequently found to contain 0·7 grain of zinc per gallon and the latter 1·25 grains.

The inquiries made confirmed the conclusion arrived at by the medical officer of health and the medical practitioner—namely, that the water was perfectly wholesome. We have, therefore, a small community of people of all ages who have used for ten years no other water but this, which contains from 0·7 to 1·6 grains of zinc per gallon, and yet have suffered no injury to health.

It is perfectly obvious, therefore, that the statements made about the injurious effects of small quantities of zinc in potable water are entirely without foundation. Personally, I would rather drink habitually a water containing two grains of zinc per gallon than one containing the same amount of iron, and I really see no reason for believing that this quantity of zinc would harm anyone.

In conclusion, it may be of interest to point out that galvanised iron is largely used in London, and that the Thames and Lee derived waters supplied by the Metropolitan Water Board attack zinc and dissolve it in appreciable quantities. Water drawn first thing in the morning at my laboratories contains an easily detectable trace of zinc, and this water, when left in contact with zinc, dissolves from 0·4 to 0·8 grain per gallon, the larger amount being from pure distilled zinc and the smaller from commercial zinc. The property of dissolving this metal is not therefore confined to soft waters, but the cause of the action is a subject foreign to the purpose of this brief paper.

In every sample of water examined the zinc appears to have been in solution as bicarbonate, as the whole is thrown out of solution by continued boiling. With reference to the carbonate, Taylor in his work on "Poisons" says: "It does not appear to have any poisonous action; and it would probably require to be given in large quantity to produce any effect." No evidence is available showing that zinc can accumulate in the system, in fact, it appears to be quickly eliminated. Doses of zinc, larger than the amount contained in several gallons of zinc-contaminated water, have been given three times a day for several consecutive weeks without producing any appreciable effect. It follows, therefore, that there are no *a priori* reasons for believing that such small quantities of the metal as are found in potable waters would cause any disturbance of the bodily functions.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $250, will be made on July 14th, 1916, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College, Mr. Francis R. Packard, 19, South 22nd Street, Philadelphia, Pa., U.S.A., on or before May 1st, 1916. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. The successful essay, or a copy of it, shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1915 has been awarded to Dr. J. E. Sweet, Philadelphia, for an essay entitled "The Surgery of the Pancreas."

REOPENING OF THE GRAND PUMP ROOM AT BATH.

THE corporation of Bath may be heartily congratulated on the re-decoration of the famous Grand Pump Room. The result is most pleasing, and the work of re-decoration has been artistically carried out, while the Georgian individuality and atmosphere of the beautiful hall have been, we rejoice to say, skilfully preserved. Indeed, in some directions the historic features of the place have been developed. Thus the work of restoration has disclosed some curious circular looking-glasses which adorned the original hall, and these are now displayed just as they were found. They are very fine specimens of early mirror work in excellent condition. Again, the Chippendale settees, made for the Pump Room, were broken during an election riot 90 years ago; the seats vanished entirely, but were recently found in a lumber cellar and are brought into use, after being placed in the hands of a well-known authority on furniture and decorations in the city. While the scheme of re-decoration was proceeding opportunity was taken to improve the lighting, warming, and ventilation arrangements on up-to-date lines.

The opening proceedings on Monday last were presided over by the Mayor of Bath, Mr. Councillor F. W. Speer, and there was a large attendance of visitors and guests. The Mayor pointed out that in the early days of the present war the corporation of Bath placed at the disposal of the War Office and the Admiralty every form of treatment at the bathing establishment for the cure of officers and men invalided home from the front. Many hundreds of patients have been sent to Bath, he said, and the results have been described by medical authorities as of the most favourable kind. Men whose limbs were stiffened as the result of wounds or who were suffering from acute rheumatism as the result of exposure in the trenches have been restored to usefulness and perfect health after treatment with the Bath waters. So striking have been the cures effected by the water and air of Bath that the Government are building a hospital to accommodate 500 patients in a beautiful situation at Combe Park. This is supplementary to the present Mineral Water, Royal United, and Red Cross Hospitals now occupied by soldiers. The Mayor went on to say that at the hotels, private apartments, and hospitality, many officers have been nursed, as well as at the Red Cross Officers' Convalescent Home, which is under the direction of Lady de Blaquiere, and at the Mount Royal Officers' Nursing Home, established and conducted by Lady Strathcona in memory of her illustrious father, who was a freeman of the city of Bath. Non-commissioned officers and men are mostly tended at the Royal Mineral Water Hospital, where the treatment is given by water supplied direct from the springs, for which the corporation makes no charge. The patients include soldiers suffering from tropical diseases and others with nervous breakdowns, and many of these men have been restored to health at Bath.

The favourable results of treatment by Bath waters appear now to be referable in a large measure to their remarkable radio-activity. There can be little doubt that nutrition is improved thereby; elimination of waste and toxic products is promoted and an advance in general condition and tone is gained. With the splendid natural asset which Bath possesses in its hot radio-active waters, it would be a serious reproach to the corporation if they did not realise it both for the public benefit and that of their citizens. Their beautiful city should rank amongst the most valuable health resorts in the country, and we approve the thoroughgoing spirit with which they are helping to dispel the fallacy that only abroad can these things be done satisfactorily.

THE REPORT OF THE MEDICAL RESEARCH COMMITTEE.[1]

I.

THE first annual report of the Medical Research Committee in connexion with National Health Insurance has just appeared and is a document of real importance. Part of what is contained therein was foreshadowed by an interim report in the form of a White Paper dated May 12th, 1915, the text of which was published in full in THE LANCET of May 22nd. The full report is dated Oct. 18th, and is based upon the work during the year ending Oct. 1st, 1915; it is, therefore, entirely up to date—a very welcome feature in a report—and typifies in this respect the whole character of the work itself. The title-page contains a list of the personnel of the committee who were invited to serve, as the report reminds us, not in a representative but in a personal capacity as being "those persons who seemed, after the most careful consideration, to be best qualified." Their names merit repetition here, although, doubtless, familiar to a large section of our readers. Lord Moulton of Bank is chairman and Major Waldorf Astor treasurer of the committee, whose other members are Dr. Christopher Addison, Professor Sir Clifford Allbutt, Mr. C. J. Bond, Professor William Bullock, Professor Matthew Hay, Professor F. G. Hopkins, and Colonel Sir William Leishman, with Dr. W. Morley Fletcher as secretary.

The report having started with a summary of the general course pursued by the Committee in their first period of work, deflected as it was by the unexpected disturbing influences of the war, then goes on to give an account of the research work actually done up to Oct. 1st, 1915, dividing this up into an account of the Central Research Institute and its departments, general schemes for research, and work in connexion with the war. First, with regard to the Central Institute, it will be remembered that the scheme passed through various phases. The Mount Vernon building at Hampstead had been already chosen and an agreement of purchase entered into, the cost to be spread over a period of five years, when the Committee received a proposal from the governing body of the Lister Institute to place its buildings and resources under the control of the Committee, coupled with a further offer of Lord Iveagh to build at his own cost a research hospital of 50 beds on an adjoining site, the whole to form a National Institute for medical research. The outbreak of the war postponed these negotiations,

[1] National Health Insurance. First Annual Report of the Medical Research Committee 1914–1915. London: Printed under the authority of H.M. Stationery Office. To be purchased from Wyman and Sons, Limited, 29, Breams-buildings, Fetter Lane, E.C.

Tabular Summary of the Work of the Central Research Institute and its Departments.

THE CENTRAL RESEARCH INSTITUTE.	Temporary Offices of Committee at St. Stephen's House, Westminster, S.W. The Mount Vernon Building, Hampstead, was placed at the disposal of the War Office, and since November, 1914, has been occupied as the Hampstead Military Hospital.			
Departments.	**DEPARTMENT OF BACTERIOLOGY.**	**DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY.**	**DEPARTMENT OF APPLIED PHYSIOLOGY.**	**STATISTICAL DEPARTMENT.**
Temporary accommodation	Inoculation Department at St. Mary's Hospital and the use of 25 beds in the hospital under the control of the Medical Research Committee.	Five rooms hired from the Lister Institute with temporary loan of apparatus and otherwise from the Institute.	Three laboratory rooms hired from the London Hospital Medical School.	A house hired by the Committee at 33, Guilford-street, Russell-square, and equipped with necessary furniture and staff.
Staff: Directors ...	Colonel Sir Almroth Wright, F.R.S., S. R. Douglas, late Captain, I.M.S., both appointed August 1st, 1914.	H. H. Dale, M.D., F.R.S., appointed July 1st, 1914.	Leonard Hill, M.B., F.R.S., appointed July 1st, 1914.	John Brownlee, M.D., D.Sc., appointed July 1st, 1914.
Assistants ...	Captain W. Parry Morgan, R.A.M.C., Leonard Colebrook, M.B., B.S., H. H. Tanner, M.B., Lieutenant R.A.M.C., engaged temporarily for special purposes and periods.	G. Barger, M.A., D.Sc., A. J. Ewins, D.Sc., G. S. Walpole, D.Sc.,	B. Moore, D.Sc., F.R.S., Martin Flack, M.A., M.B.	Staff Officer: Mr. M. J. C. Meiklejohn. In sorting of medical and surgical case-sheets: Dr. Matthew Young. For actuarial calculations: Mr. H. L. Trachtenberg, B.A., A.I.A.
Important lines of research	Preparation of *antityphoid* and *antisepsis vaccines* for the Admiralty, War Office, and French and Belgian Armies. Researches at Boulogne upon the *pathology* and *treatment* of *infected wounds*. Work in connexion with the epidemic of *cerebro-spinal fever* during the first half of 1915.	General survey of *alkaloids*. Work on the nature of the toxic principle of *gas gangrene*. Extensive work on *anaphylaxis*. Standardisation of drugs by *biological tests*. Chemotherapy of *bilharziosis*. *Synthesis of certain drugs* and other confidential inquiries for the War Office and other departments.	Investigation of the *incidence of phthisis* in relation to particular occupations and industries. Practical problems of *ventilation*. Study of *colloids* in connexion with pellagra. Measurement of *arterial pressure* in man. Study of union between *serum and antiseptics* in wounds. Special inquiries in connexion with the war, effect of *poison gases* and otherwise.	Whole compilation of the *statistics of the sick and wounded* from the Home and the Expeditionary Forces. Sorting and classification of the medical and surgical *case-sheets* from the Military Hospitals Study of the *epidemiology of measles*. Statistical investigation of the male *population of the German Empire* and its distribution.
Principal papers already published	Almroth Wright: "Wound Infections" (Proceedings of the Royal Society of Medicine, April, 1915; THE LANCET, April 10th, et seq., 1915). Almroth Wright: "Draining of Wounds" (THE LANCET, Oct. 16th, 1915). Almroth Wright: "Wound Infections" (THE LANCET, Oct. 30th et seq., 1915).	Dale and Barger: "Liver Nitrogen in Anaphylaxis" (Bio-Chemical Journal, December, 1914). R. T. Leiper: "Report of Bilharzia Mission in Egypt, 1915" (Royal Army Medical Corps Journal, July, 1915, et seq.).	B. Moore: "Colloids" (Proceedings of Royal Society, vol. lxxxviii., 1915). Hill, Flack, and McQueen: "Measurements of Arterial Pressure" (Proceedings of Royal Society, vol. lxxxviii., 1915). "Occupations and Phthisis" (Report of Special Investigation Commission).	J. Brownlee: "Periodicity of Infectious Diseases" (Public Health, March, 1915). J. Brownlee: "On the Curve of the Epidemic" (British Medical Journal, May 8th, 1915). J. Brownlee: "Four Studies in the Meaning and Relationships of Birth and Death Rates" (Journal of Hygiene, July 30th, 1915).
Papers ready to publish or confidential	Colebrook and Tanner: Sterilisation of positive contacts infected with meningococcus.	Dale: Rôle of Different Pure Proteins of Horse Serum. Confidential Report to War Office.	Report upon the Incidence of Phthisis in the Printing Trade. Result of Researches on Practical Problems of Ventilation.	Report upon the Incidence of Phthisis in the Boot and Shoe Industry. Confidential Report to H.M. Government on Distribution of German population.
Other work associated with the department... ...	The staff at the laboratories at Boulogne was augmented by the addition of Captain W. d'E. Emery, Dr. A. C. Inman, and Captain S. W. Patterson, all working on the pathology and treatment of wound infections.	—	Dr. Hill has been appointed a member of the *Health of Munition Workers'* Committee, and the resources of the Department have been placed at the disposal of this Committee for experimental enquiries.	Dr. Matthew Young has been engaged temporarily to assist Dr. Brownlee in the work of making the case-sheets available for the official *Medical History of the War*.

Summarised from the First Annual Report of the Medical Research Committee, 1914-15 (National Health Insurance).

which were finally suspended in November, 1914, after the members of the Lister Institute had declined to support the proposals of their governing body. Accordingly, at this time the Mount Vernon building, although in the possession of the Committee, had remained unaltered and unoccupied, and was at once placed at the disposal of the War Office for use as a military hospital in case of special need. The need soon arose, and since November, 1914, the building has been occupied as the Hampstead Military Hospital. The four departments of the Central Research Institute already constituted had, therefore, to find accommodation elsewhere, and for the purpose of making this clear to our readers we append a tabular summary of these departments, with the work done in connexion with each. This table will serve to illustrate the catholic manner in which all the various sections of research have been treated, and the way in which they are being worked up into a harmonious whole.

The part of the report dealing with the general schemes for research, and with the work in connexion with the war will be dealt with in a later issue.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:—

	£	s.	d.		£	s.	d.
Dr. G. D. H. Carpenter...	1	0	0	Mr. R. F. Priestley ...	1	0	0
Dr. H. M. Page	1	1	0	Mr. A. Chapman	0	7	11
Mr. R. W. Clarke	0	10	0	Mr. W. W. Thomas ...	0	5	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges the receipt of surgical instruments kindly contributed by the following donors:—

Miss May Rathbone, Welbeck-street, London, W.
Dr. A. H. Penistan, Cleveleys, near Blackpool.

Surgical instruments should be sent to the Master of the Society of Apothecaries of London, Blackfriars, London, E.C.

THE MASTERSHIP OF THE ROTUNDA HOSPITAL.—The board of the Rotunda Hospital, at its meeting on Nov. 5th, elected Dr. Henry Jellett as Master, and at the same time gave him three months' leave of absence to continue his service with the Munro Ambulance Corps in Flanders, without prejudice to further leave of absence. The three past Masters, Sir William Smyly, Dr. R. D. Purefoy, and Dr. E. H. Tweedy, who for the past 11 months have performed the duties of the Master, have kindly consented to continue their services during Dr. Jellett's absence. It will be remembered that last November Dr. Jellett, who had been Master since 1910, and in the ordinary way would have continued in office until 1917, asked the board of the hospital for six months' lease of absence, in order that he might serve abroad with the Munro Ambulance Corps. Leave was refused by the board, and Dr. Jellett resigned his position as Master. As the board has no power to elect a Master except at the November meeting, the post has since remained vacant. It is to the credit of those who in other circumstances would have been candidates that they refused to compete against Dr. Jellett. By unanimously re-electing him the board has done its best to blot out the memory of its unintelligible refusal to give him leave of absence last winter.

THE NATIONAL INSURANCE ACT.

New Insurance Regulations for 1916.

ALL medical practitioners on the panels, or their representatives in their absence, should have received before Nov. 5th a circular letter prepared by the Insurance Commissioners and issued by them to the Insurance Committees for distribution, giving notice to the practitioners as to alterations made in the terms of their service under the Insurance Act by certain new regulations. The changes which will affect the carrying out of existing agreements are endorsed upon the letters referred to and fresh agreements are not required for 1916, as every practitioner who does not by Nov. 19th give notice in writing to his committee of his desire to discontinue panel practice will by implication have accepted the terms of service as amended. A memorandum, however, addressed to committees which accompanied the new regulations and the letter referred to assigned the emphasis of italics to the warning that owing to eight weeks' notice of new regulations being necessary the letters must reach individual practitioners before Nov. 5th. This memorandum makes clear the grave difficulties which have arisen in insurance finance and which have required immediate consideration. Those interested in the matter will study this document (217/I.C.) itself, as it is too long to reprint here, but to put the matter briefly it was found that the money provided under the Act for the payment of doctors and pharmacists was insufficient. The bills of the latter could only be paid in many instances after subjecting them to a deduction of "discount" which was naturally objected to, and the annual minimum to which the former were entitled was fixed at 7*s.* by a definite arrangement, and so could not be encroached upon. In these circumstances, the Commissioners proposed that "instead of the doctors' minimum of 7*s.* being guaranteed, as at present, at the cost of the risk of chemists' accounts being discounted, the doctors who are responsible for the ordering of medicines would themselves be called upon to guarantee to the chemists payment in full at commercial prices for the medicines so ordered, whilst receiving the benefit of any reduction in prices due to the introduction of a commercial tariff." The Commissioners describe the risk of any encroachment being made under such a scheme upon the minimum of 7*s.* as "theoretical except in the case of sheer extravagance," relying upon the reduction of prices to be afforded by a "commercial tariff," and upon the greater economy in prescribing which would result from the changed incidence of the charges for drugs. The members of the medical profession affected did not, however, see the matter in the same light, and emphatically, through the Panel Committees, rejected the proposal to do away with their right to the 7*s.* minimum, whether the risk of pecuniary loss involved was "theoretical" or not. The pharmacists, on the other hand, were expressing more and more firmly their resolve not to tolerate the discounting system, even though the maintenance of their attitude might involve discontinuance of service under the Insurance Act. As a way out of the difficulty the Insurance Commissioners were compelled to have recourse to the Treasury, with the result that a new fund, to be obtained by pooling certain balances of the Drug Fund, is to be used for guaranteeing payment to the pharmacists under a new commercial tariff, the Treasury taking the risk should the fund so formed prove insufficient for its purpose. Medical men interested are to be congratulated upon having adhered to their position and maintained it. To have seceded from it, and to have divested themselves of the right to a 7*s.* minimum would have been to take risk of loss falling upon their shoulders for which the legislature which framed the Insurance Act is responsible. To medical men it will probably occur that if there is not enough money as matters stand it should be found by means of increased contributions on the part of those benefited, not by docking the legitimate earnings either of medical men or of druggists. The phrase in the memorandum quoted above, in which medical men are spoken of as "responsible for the ordering of medicines," and so as justly to be the guarantors of the druggists' bills, is hardly a happy one. The medical practitioner may occasionally be responsible for an expensive prescription in the sense implied, but as a rule the conditions observed in the patient are "responsible" for the prescription which ought to be given, and the medical man acts upon the principle that the Insurance

Act was passed in order that the poor should receive treatment equal in quality to that at the command of their wealthier fellow citizens. Practitioners will note that the last paragraph of the new regulations to which their attention has been called by the letter referred to finally settles the question of signing insurance certificates with rubber stamps. All such signatures in and after 1916 must be written by the practitioner with his own hand.

London Insurance Committee.

The reports of the Medical Service Subcommittee of the London Insurance Committee laid before the committee at its recent meeting, upon complaints against medical practitioners, comprise two which are of interest. In one of these the complaint was lodged by an Approved Society with regard to the alleged issue by the practitioner of four certificates of incapacity certifying that the insured person had been examined by the practitioner on the dates stated on the certificates, whereas in point of fact no such examinations were made. As a result the committee was unanimous in deciding that the medical man had committed a breach of his agreement, and that he should be censured for so doing. The peculiar feature of the case, however, occurred in the issue by three members of the committee of a minority report. They concurred in the finding and in the censure, but could not acquiesce in the issue by the subcommittee of a report containing a paragraph relating to matters outside the complaint referred to it, and as to which no notice that they would be discussed had been given to one of the parties. The minority, therefore, issued a report and finding identical with that of the majority but for the omission of the paragraph objected to. The objection raised by the signatories of the minority report appears to be reasonable in principle, but the paragraph containing the matter alleged to be irrelevant to the inquiry is in itself of some importance in connexion with medical attendance upon the members of Approved Societies. It shows that inquiry was made by the subcommittee into the rules, or alleged rules, of the society of which the insured person was a member with regard to a member doing no housework of any kind while receiving sickness benefit. A rule thus forbidding housework was contained in instructions issued to sick members, but not in the rules as approved by the Insurance Commissioners, and the majority in their report stated that they referred to the matter because they felt that in certain circumstances a rule of this character might easily conflict with the directions given by a practitioner to his patient. The second case referred to was based upon allegations, which the subcommittee found to be justified, that the practitioner permitted prescriptions to be furnished to insured persons on his behalf by unqualified persons, and that he neglected his practice, being absent at a distance at night, at which time insured persons seeking his aid were told that he was engaged in connexion with another case, this being untrue. The principal person who issued prescriptions in the absence of the practitioner was a friend of his, a masseur, who told the subcommittee that what he did was to give the patients repeats of former prescriptions. These he copied from the labels on the bottles brought by them to the surgery. He had not given original prescriptions, and was enabled to act in the manner described by the practice observed by a druggist close by who made up the majority of the prescriptions and who, when doing so, wrote out in full upon the labels the ingredients of the mixtures dispensed. A lady secretary also admitted that she gave prescriptions, apparently also repeats, but she said that she did so with the knowledge of the practitioner who was in an adjoining room at the time. The subcommittee recommended that this practitioner should be informed that his conduct had been extremely reprehensible and that he should be severely censured.

Moore v. *Leicester Insurance Committee.*

This important action was brought by Mr. C. W. Moore against the Insurance Committee for the borough of Leicester, the plaintiff asking for an injunction, which he obtained, to restrain the defendants from deducting, by way of surcharge, £31 7*s.* from money due to him in respect of his services as a member of the panel. In 1914 the Pharmaceutical Committee reported to the Leicester Insurance Committee the insufficiency of the drug fund to meet the druggists' accounts and ascribed it to excessive prescribing on the part of the panel. The Panel Committee considered the complaint of extravagance to be frivolous and vexatious, but a request for further consideration of it was granted and there was a conference of the Panel and Pharmaceutical Committees at which an agreement was arrived at out of which the litigation arose. The arrangement made was that £200 should be transferred from the medical fund to the drug fund, followed by a decision that the £200 should be obtained by calculating the average cost of the drugs ordered by the practitioners on the panel, and by surcharging each practitioner whose prescriptions had exceeded that average. The deductions thus made were to be in proportion to the amount by which the prescriptions of the individual practitioner exceeded the average, the calculation being on such a basis that the total amount of £200 should be raised by the means indicated. In this manner Mr. Moore found himself debited with a sum of £31 7*s.* without having had any opportunity to attend the investigation or having even heard of it. It was argued on behalf of Mr. Moore that the power given by the Act to make regulations did not give authority to make them so as to deprive a medical man of that to which by the Act and by his agreement he was entitled—in other words, that Rule 40 of the Medical Benefit Regulations, 1913, was *ultra vires*. This point was not decided by Mr. Justice Rowlatt, who in his judgment assumed that the regulation was *intra vires*, and accepted the further argument of the plaintiff's counsel, that even if the rule were a good one the defendants had not complied with it. It did not appear to his lordship that the Pharmaceutical Committee had represented to the Panel Committee that the cost of the supply of drugs was "in excess of what might be reasonably necessary for the adequate treatment of patients." They had asked that there should be investigation as to where medical men had exceeded the average in the cost of the drugs prescribed by them, and the Panel Committee had not found that there had been extravagance on the part of any practitioner. They had simply said that there was a deficit in the drug fund, and recommended to the Insurance Committee that there should be a surcharge to make it up. This was not a report within the meaning of the Regulations, and the adoption of a system of average seemed to show conclusively that the committee had not addressed themselves to the question of extravagance. The mere fact that a medical man's prescriptions exceeded the average did not prove that he prescribed extravagantly. An injunction was accordingly granted with costs. In comment regret may be expressed that the question raised as to the validity of Rule 40 was not dealt with. It will, however, not be forgotten, and no doubt the opportunity for its determination will occur. As to the general result of the case, the soundness of the judgment of Mr. Justice Rowlatt should commend itself to all who are acquainted with the Insurance Acts and Regulations, and it is only a matter of surprise that the Leicester Insurance Committee should have adopted a course which, though doubtless convenient to them, was so different from the usual practice, and so difficult to justify by reference to the regulations framed for their guidance. Mr. Moore and the Medical Defence Union, who through their solicitors, Messrs. Hempsons, conducted his case for him, are to be warmly congratulated upon its successful conclusion, as are those other medical men on the Leicester panel who were surcharged for the balance of the £200.

Association of Scottish Insurance Committees.

At the annual conference of the Association of Scottish Insurance Committees held in Dundee on Oct. 30th, an address was given by Dr. J. C. McVail, deputy chairman of the Scottish Insurance Commission. He began by pointing out that the Insurance Act differed essentially from other Acts of Parliament in requiring for its smooth working the coöperation of some 15 million persons in the United Kingdom. The duty of the Commissioners was not merely to perform their own functions, but to see that all the other parties concerned performed theirs. Admonishment, when required, generally had to take the form of defending the bodies who were absent and whom at other times they had to criticise. The Commissioners had also found it necessary to take on the duties of the ratepayer who does not exist under the Insurance Act. Rigid care and economy were required at present to avoid exhausting the available stock of certain drugs. Committees should realise the importance of securing the confidence of complainants, who should be made to feel that complaints were fairly and carefully considered and a decision always given on the merits.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet:—Dated Nov. 1st: William MacMurray. Dated Nov. 2nd: Arthur de Visme Blathwayt and Alexander Gray McKee.

The following appointments have been notified:—Fleet-Surgeons: E. Folliott to the *Vivid*, additional; and R. S. Osborne to the *Victory*, additional. Staff-Surgeon: F. E. Bolton to the *St. George*. Temporary Surgeons: H. E. Scowcroft to the *Pembroke*, additional; E. W. Todd to the *Pembroke*; and H. Wilks to the *Victory*, additional.

ARMY MEDICAL SERVICE.

The undermentioned Lieutenant-Colonels to be temporary Colonels whilst holding the appointments of Assistant Directors of Medical Services:—

Dated July 23rd: Alfred E. C. Keble.
Dated August 18th: George S. McLoughlin, C.M.G., D.S.O.
Dated August 19th: John D. Ferguson, D.S.O.
Dated August 22nd: Henry N. Dunn.
Dated Sept. 8th: Edward W. Slayter.
Dated Sept. 13th: Nicholas Tvacke.
Dated Sept. 22nd: Harry A. Hinge.

ROYAL ARMY MEDICAL CORPS.

Temporary Major J. F. W. Silk to be temporary Lieutenant-Colonel (dated Nov. 4th).

David White Finlay to be temporary Honorary Lieutenant-Colonel whilst holding the appointment of Officer in charge of Red Cross Hospital at Ballahouston, Glasgow (dated Nov. 9th).

Arthur F. Hertz to be temporary Major (dated Oct. 26th).

The undermentioned temporary Lieutenants to be temporary Captains:—

Dated Sept. 19th: Edward Hamilton.

Dated Oct. 1st: Eric F. W. Mackenzie, Thomas E. Lawson, Frank E. Johnson, William MacEwen, and Philip H. Bahr.

Dated Oct. 2nd: Charles G. L. Wolf, Clayton C. Morrell, James Biggam, Cuthbert Scales, David Pottinger, Leslie W. Howlett, and David Hardie.

Dated Oct. 3rd: Richard H. C. Gompertz, Arthur B. Le Mesurier, William A. Todd, John McFadden, Robert B. Blair, Philip J. Watkin, Matthew Murphy, and William R. MacKenzie.

Dated Oct. 5th: Charles M. Kennedy, Delvine Bell, Edwin B. Barton, John S. K. Boyd, Douglas M. Borland, William S. Garden, John H. C. Green, Aubrey Goodwin, Stanley Honeyman, Robert McC. Hill, Alfred E. Hallinan, Thomas H. Houston, Courtnay C. Keates, David Matthew, William S. Martin, Henry M. MacKenzie, Fred W. Mackenzie, John T. Morrison, Hugh L. Neil, Ralph S. Oldham, William B. U. Patterson, George Rankine, William R. Snodgrass, James J. Sinclair, James Taylor, James H. Grove-White, Donald Wainwright, and Wilfred T. Chaning-Pearce.

Dated Oct. 7th: Francis F. Muecke and John N. Clark.

Dated Oct. 8th: Arthur O. P. Reynolds and Stanley Pinion.

Dated Oct. 9th: Albert J. Best, William K. Calwell, Hugh G. Wilson, Douglas G. Cheyne, Samuel E. Picken, and John L. Dunlop.

Dated Oct. 10th: Robert H. Spittal, Hubert W. Powell, Edward A. Walker, Thomas S. Wright, Ernest White, Edward C. Gimson, William E. Wallis, William W. Forbes, Robert Kennon, Francis E. Daunt, David J. S. Stephen, Philip A. Opie, Charles G. Timms, Edgar Grey, John Fleming, Gordon S. Woodman, John P. Davidson, William P. Hogg, George Wilson, John Scott, James W. McLeod, Bryce McC. Smith, Lewis Anderson, Henry G. Rice, David R. E. Roberts, Ernest N. Snowden, Kenneth G. Fraser, John S. Levis, David R. Mitchell, Denis J. Stokes, Charles M. Smith, John McL. Pinkerton, William C. Douglass, Alan Wilson, Malcolm K. Acheson, Alexander Anderson, Carl K. G. Dick, William G. Gordon, John E. Stacey, John V. O. Andrew, John Spence, John P. Cahir, Ernest F. C. Dowding, Thomas P. Cole, John Parkinson, John H. McNicol, Reginald J. Wooster, William MacKenzie, Edward W. Ament, Cedric R. Taylor, Douglas W. Hunter, James S. Somerville, Thomas P. Lewis, Claude G. Douglas, John W. Flood, Ralph F. Eminson, William E. Hopkins, Robert B. Wallace, William B. Watson, John Capell, Spencer Jackson, Stanley Fenwick, William E. Fetherstonhaugh, John M. Forsyth, Alexander E. Drynan, Archibald S. K. Anderson, James W. Brown, David S. Harvey, Edward F. G. T. Heap, George Millar, John Henderson, Lawrence F. Hemmans. William Baxter, Thomas W. R. Strode, and Newton Matthews.

Dated Oct. 12th: Tremlett B. Batchelor, Noel A. Coward, Ranald M. Handfield-Jones, John G. Ingouville, Michael J. Mulligan, Michael Murphy, George W. Milne, Humphrey Neame, Vivian M. Rich, Edward L. N. Rhodes, George Thom, John Tichborne, George W. Will, and Alfred S. Taylor.

Dated Oct. 13th: William G. Lidderdale.

Dated Oct. 14th: Magnus R. Mackay.

Dated Oct. 15th: Frank A. Grange, John D. Lithgow, James A. Smith, and Malcolm W. Shutte.

Dated Oct. 16th: John W. Dew.

Dated Oct. 17th: John H. D. Acland, Henry A. Ehrlich, Robert C. Irvine, and Douglas E. Crosbie.

Dated Oct. 19th: Herbert T. Retallack-Maloney, Arthur F. Palmer, and Percy J. Chissell.

Dated Oct. 20th: Claude Kingston.

Dated Oct. 21st: William H. Brown, Joseph H. Campian, Gerald Cock, Walter J. I. Dwyer, Sydney H. Gibson, John C. B. Grant, Alexander K. Hamilton, Albert G. Miller, Alexander T. McWhirter, Patrick J. O'Reilly, John A. Pringle, Edmund G. C. Price, Thomas T. Rankin, Percy C. Raiment, Ronald J. T. Thornhill, Henry A. Treadgold, Alfred W. Weston, William M. Will, John J. Walsh, William S. Milne, Joseph G. Johnston, and George W. Rea.

Dated Oct. 22nd: Richard Charles, Henry C. C. Rennie, and John H. O'Neill.

Dated Oct. 23rd: Arthur de W. Snowden.

Dated Oct. 24th: Michael J. Kelly, Arthur G. Leitch, William W. Mackarell, John B. Orr, Maurice P. Scanlon, Ernest A. Tozer, John C. Anderson, and Alfred J. Andrew.

Dated Oct. 26th: John MacInnes and Herbert Emerson.

Dated Oct. 28th: William G. Brett.

Dated Oct. 29th: Robert L. Brown and Winslow S. S. Berry.

The undermentioned to be temporary Captains:—

Dated June 2nd: Captain Eric L. Dobson, Honourable Artillery Company, Infantry (T.F.).

Dated Oct. 9th: John Henry Jones, late Staff-Surgeon, Royal Navy.

Dated Oct. 10th: Malcolm Ferguson.

Dated Oct. 11th: Harry Meade and Thomas Andrew Rothwell, late Surgeon-Captain, 3rd Volunteer Battalion, The Cheshire Regiment.

The undermentioned temporary Honorary Lieutenants to be temporary Lieutenants:—

Dated Sept. 27th: Everard W. L. Sharp.

Dated Oct. 9th: Thomas Burges Welsh, Alfred Noel Garrod, John Llewellyn Davies, Andrew Hunter Little, and William Frank Thompson.

The undermentioned to be temporary Lieutenants:—

Dated June 8th: Alexander Brown.

Dated July 6th: Temporary Lieutenant Harold Parsons, from the Army Service Corps.

Dated August 1st: Charles Richard Maitland Pattison.

Dated Sept. 12th: Harry Butson Maunsell.

Dated Oct. 4th: Allan Semple.

Dated Oct. 7th: John Henry Morris-Jones and Robert Chichester McMillan.

Dated Oct. 9th: Seymour Whitney Davies, Timothy Joseph Lloyd, Arthur John Brock, Rupert Allen Clayton Rigby, Francis Joseph McGlade, Charles Herbert Farley Johnston, Charles Edwin Durrant, Charles Michael Roberts, William Melville Christie, Charles Samuel Kingston, and Alexander Moxon Webber.

Dated Oct. 10th: Arthur William Courtney Drake, Rufus Clifford Thomas, Thomas McCall Sellar, William Robert Wilson, Pollock Donald, Thomas Arthur Collinson, William Gillespie Bryson Gunn, William O'Donnell, and William Watt Farrar.

Dated Oct. 11th: Samuel Wilson McComb, Richard Robert Kirwan, Robert Charles Muir, William James Macdonald, John Black, Alwyne Harold Manfield, Cecil Granville McClymont, James Percival Scatchard, Alban Dixon, Henry Robert Ramsbotham, Victor Albert Chatelain, James Batson Stephens, John Williamson Frew, Basil Henry Palmer, John Norman Lonsdale Thoseby, Alexander Graham Bryce, Arthur Borland Porteous, and George Unsworth.

Dated Oct. 12th: John Fletcher Strickland, Nathaniel Troughton Bond, Alexander Dingwall, John Walter Burnett Thornburn, Benjamin Poyntz Young, Malcolm McLean Morrison, Charles Aloysius Keegan, Arthur William Wakefield, and William Joseph Maloney.

Dated Oct. 15th: Robert Robertson Kilpatrick, Arthur Dennison, John Joseph Michael Dowzer, Thomas William Jackson, Donald Frederick Dobson, John Campbell Smith, Harold Topham, William Douglas Anderson King, George Norman Kirkwood, John Miller, John Wilson Mathie, Arthur John Partridge, Frederick Ritchie, William Gerald Parkinson, Walter Johnstone McKeand, Cecil Alfred Dottridge, Wilfrid Robert Burton, John Frank William Waters, Robert Edward Smith, William Eardley, George Blair, Samuel Francis Allen Charles, Thomas Macmillan Anderson, George Cowley Gell, John Edward Thompson, John Aloysius Pierse, Robert Sidney Ellis, William George

Thomas Hepplewhite, Ernest James Maxwell, John Ownsworth Garland, and temporary Honorary Lieutenant Frederick William Watkyn-Thomas.

Dated Oct. 16th: Francis James Browne, Thomas Muir Crawford, George Stevenson Gordon, Stevenson Plumbe Moore, and William Beatson Drummond.

Dated Oct. 17th: John Charsley Mackwood and James Joseph Reynolds.

Dated Nov. 10th: Alexander Waugh.

The undermentioned to be temporary Honorary Lieutenants:—

Dated July 24th: James Reid Dick, whilst employed with No. 1 British Red Cross (Duchess of Westminster's) Hospital.

Dated Oct. 21st: James Stuart Leslie.

Robert Joel Cazalet Donty to be temporary Honorary Lieutenant whilst serving with No. 2 British Red Cross Hospital (dated Oct. 24th).

Temporary Honorary Captain Mark C. Gardner relinquishes his commission on ceasing to be employed with the Australian Voluntary Hospital (dated Oct. 3rd).

Temporary Honorary Lieutenant Andrew F. H. Rabagliati relinquishes his commission on ceasing to be employed with No. 4 British Red Cross Hospital (dated Oct. 24th).

Temporary Lieutenant Albert Turner relinquishes his commission (dated Sept. 19th).

The appointment to a temporary Lieutenancy of Fraser B. Gurd is antedated to May 25th.

OVERSEA CONTINGENTS: CANADIAN ARMY MEDICAL CORPS.

B. A. Sandwith to be temporary Captain, R.A.M.C. (dated Oct. 14th).

The undermentioned Lieutenants to be temporary Lieutenants, R.A.M.C.:—

Dated Oct. 4th: Thomas John Simpson, John George Moore Sloane, Cecil John Sparrow, Michael Joseph Casserley, and Arthur Clifford Johnston.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants to be Captains: Gavin Young, Peter MacCallum, James S. Robinson, Robert Forgan, James O'Brien, Forster H. B. Norrie, Robert B. Myles, Gilbert W. Rose, Douglas Cran, Robert McKinlay, William B. Postlethwaite, John O. Reid, Patrick C. MacRae, John McC. Orme, Ian C. Mackay, Henry P. Crow, William B. Cathcart, Frederick E. Feilden, Neville H. Linzee, Robert P. S. Mason, Austin A. Clarke, Thomas Young, John F. Lyons, James G. Wilson, Alfred T. Logan, Raymond F. Pinson, and Robert Taylor.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Highland Mounted Brigade Field Ambulance: Ronald William Cadell Macdonald (late Surgeon-Lieutenant, 8th Volunteer Battalion, The Royal Scots) to be Captain.

South Midland Field Ambulance: Lieutenant Edmund Whichello to be Captain.

Wessex Field Ambulance: Captain Harold C. Adams to be temporary Major.

Eastern General Hospital: Captain Charles H. Benham is seconded for duty with a general hospital.

Northern General Hospital: Captain Wilfred E. Alderson, from Attached to Units other than Medical Units, to be Captain, whose services will be available on mobilisation. Captain Arthur A. Pratt is seconded for duty with a Casualty Clearing Station.

London Sanitary Company: John Inglis to be Lieutenant.

East Lancashire Casualty Clearing Station: Captain Thomas B. Wolstenholme to be temporary Major.

Northumbrian Casualty Clearing Station: The undermentioned Lieutenants to be Captains: Fred Phillips and Stanley McCoull.

East Lancashire Field Ambulance: Frederic William Marsden (late Major, East Lancashire Brigade, Royal Field Artillery) to be Major.

London Field Ambulance: Captain Edward P. Minett is restored to the establishment. Lieutenant Robert W. Baron resigns his commission on account of ill-health.

Southern General Hospital: To be Captains, whose services will be available on mobilisation: Eric Danvers Macnamara and Gathorne R. Girdlestone.

London Casualty Clearing Station: Lieutenant Cecil A. Robinson to be Captain.

Lowland Field Ambulance: Lieutenants to be Captains: Frank M. Robertson and William J. Scade.

Highland Casualty Clearing Station: Alexander Fraser MacBean to be Lieutenant.

Welsh Border Mounted Brigade Field Ambulance: William Morgan to be Lieutenant.

London (City of London) Field Ambulance: Captain Arthur D. J. B. Williams relinquishes his commission.

Attached to Units other than Medical Units.—Lieutenant Leonard H. H. Boys to be Captain.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7609 births and 4945 deaths were registered during the week ended Saturday, Nov. 6th. The annual rate of mortality in these towns, which had been 13·9, 13·3, and 13·8 per 1000 in the three preceding weeks, rose in the week under notice to 14·2 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of last year. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 14·0, against 14·6 per 1000 in London. The annual death-rate last week ranged from 4·0 in Ilford, 5·2 in Wimbledon, 7·0 in Walthamstow, 7·2 in Wallasey, and 8·1 in Southend-on-Sea, to 19·0 in Middlesbrough, 20·1 in Blackpool, 23·3 in Walsall, 24·5 in Barrow-in-Furness, and 26·1 in Barnsley.

The 4945 deaths from all causes were 135 in excess of the number in the previous week, and included 444 which were referred to the principal epidemic diseases, against numbers declining from 973 to 451 in the five preceding weeks. Of these 444 deaths, 226 resulted from infantile diarrhœal diseases, 71 from diphtheria, 57 from measles, 44 from whooping-cough, and 23 each from scarlet fever and enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·3 per 1000, and coincided with that recorded in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had steadily declined from 808 to 255 in the five preceding weeks, further fell to 226 and included 56 in London, 20 in Liverpool, 10 in Birmingham, 9 in Manchester, and 7 each in West Ham and Walsall. The deaths referred to diphtheria, which had been 61, 50, and 73 in the three preceding weeks, fell to 71, of which 19 occurred in London, 6 in Stoke-on-Trent, and 3 each in Plymouth, Barrow-in-Furness, Sheffield, and Hull. The fatal cases of measles, which had been 23, 40, and 37 in the three preceding weeks, rose to 57 last week; 7 deaths were registered in Gloucester, 5 each in Nottingham and Sheffield, and 4 each in Birmingham and Barnsley. The deaths attributed to whooping-cough, which had been 35, 31, and 36 in the three preceding weeks, further rose to 44, and included 10 in London, 7 in Liverpool, and 3 each in East Ham and Birmingham. The deaths referred to scarlet fever, which had been 21, 26, and 25 in the three preceding weeks, fell to 23, of which 9 occurred in London, 3 in Liverpool, and 2 in Birmingham. The fatal cases of enteric fever, which had been 12, 11, and 25 in the three preceding weeks, fell to 23, and included 2 each in London and Southampton.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3014, 3110, and 3110 at the end of the three preceding weeks, fell to 3066 on Saturday last; 344 new cases were admitted during the week, against 453, 462, and 378 in the three preceding weeks. These hospitals also contained on Saturday last 1624 cases of diphtheria, 72 of measles, 52 of enteric fever, and 6 of whooping-cough, but not one of small-pox. The 1244 deaths from all causes in London were 18 in excess of the number in the previous week and corresponded to an annual death-rate of 14·4 per 1000. The deaths referred to diseases of the respiratory system, which had been 169, 187, and 216 in the three preceding weeks, further rose to 265 in the week under notice, and were 72 above the number recorded in the corresponding week of last year.

Of the 4945 deaths from all causes in the 96 towns, 209 resulted from different forms of violence and 396 were the subject of coroners' inquests, while 1436 occurred in public institutions. The causes of 49, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Leeds, Bristol, Bradford, Newcastle-on-Tyne, and in 56 other smaller towns. Of the 49 uncertified causes of death, 10 were registered in Birmingham, 8 in Liverpool, 5 in Gateshead, 3 each in Southport and South Shields, and 2 each in Stoke-on-Trent, Blackpool, Sheffield, Hull, and Darlington.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1022 births and 726 deaths were registered during the week ended Saturday, Nov. 6th. The annual rate of mortality in these towns, which had been 15·5, 15·7, and 16·2 per 1000 in the three preceding weeks, fell to 16·1 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 16·0, against

14·0 per 1000 in the large English towns. The annual death-rate last week ranged from 6·1 in Falkirk, 10·3 in Perth, and 11·3 in Kilmarnock, to 17·8 in Paisley, 18·0 in Greenock, and 22·0 in Leith.

The 726 deaths from all causes were 1 fewer than the number in the previous week, and included 61 which were referred to the principal epidemic diseases, against numbers decreasing from 102 to 77 in the four preceding weeks. Of these 61 deaths, 18 resulted from infantile diarrhœal diseases, 15 from measles, 12 from scarlet fever, 9 from diphtheria, 4 from whooping-cough, and 3 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·4, against 1·3 per 1000 in the large English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 54 to 25 in the four preceding weeks, further fell to 18, and included 6 in Dundee, 4 in Glasgow, and 2 each in Edinburgh, Aberdeen, and Clydebank. The deaths referred to measles, which had increased from 6 to 20 in the six preceding weeks, fell to 15, of which 6 occurred in Glasgow, 3 in Greenock, and 2 each in Edinburgh and Ayr. The fatal cases of scarlet fever, which had been 16, 18, and 14 in the three preceding weeks, fell to 12 last week, and comprised 9 in Glasgow, 2 in Aberdeen, and 1 in Edinburgh. The deaths attributed to diphtheria, which had been 8, 9, and 14 in the three preceding weeks, fell to 9, of which 5 were registered in Glasgow and 2 each in Edinburgh and Aberdeen. The 4 deaths referred to whooping-cough, of which 2 were registered in Aberdeen, were slightly in excess of the average in recent weeks. The 3 fatal cases of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had steadily increased from 56 to 158 in the nine preceding weeks, fell to 150 in the week under notice, but were 46 above the number registered in the corresponding week of last year. The deaths from violence numbered 32, against 24 and 33 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of this year, 540 births and 367 deaths were registered during the week ended Saturday, Nov. 6th. The annual rate of mortality in these towns, which had been 14·8, 16·0, and 16·9 per 1000 in the three preceding weeks, fell to 15·8 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 15·9, against corresponding rates of 14·0 and 16·0 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 15·6 in Dublin (against 14·4 in London and 17·1 in Glasgow), 15·8 in Belfast, 16·3 in Cork, 24·0 in Londonderry, 6·8 in Limerick, and 11·4 in Waterford, while in the 21 smaller towns the mean death-rate was 16·6 per 1000.

The 367 deaths from all causes were 26 fewer than the number in the previous week, and included 27 which were referred to the principal epidemic diseases, against 53 and 51 in the two preceding weeks. Of these 27 deaths, 15 resulted from infantile diarrhœal diseases, 4 from scarlet fever, 3 from diphtheria, 2 each from measles and whooping-cough, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·2, against corresponding rates of 1·3 and 1·4 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 29, 36, and 23 in the three preceding weeks, further fell to 15, and included 4 each in Dublin and Belfast and 2 each in Tralee and Queenstown. The deaths referred to scarlet fever, which had been 3, 3, and 8 in the three preceding weeks, fell to 4 last week, and comprised 3 in Belfast and 1 in Cork. The 3 fatal cases of diphtheria were registered in Dublin, Belfast, and Lisburn respectively; those of whooping-cough in Ballymena; those of measles in Dublin and Londonderry; and that of enteric fever in Dundalk.

The deaths referred to diseases of the respiratory system, which had been 42, 60, and 53 in the three preceding weeks, rose to 65 in the week under notice. Of the 367 deaths from all causes, 124, or 34 per cent., occurred in public institutions, and 9 resulted from violence. The causes of 15, or 4·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 1·0 per cent.

CORNISH CENTENARIANS.—Mrs. E. H. Selley, of Gloucester, born at Lawhitton, Cornwall, and Mrs. Page, of Rochester, born at Launceston, Cornwall, both celebrated last week the 100th anniversary of their birthday.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Arterial Intubation.

WOUNDS of large arteries require ligature, which implies immediate suppression of the circulation in the whole limb or organ supplied by the vessel. Such sudden suppression may give rise to gangrene of the limb requiring secondary amputation or to grave functional disturbance—e.g., of the brain. To avoid these accidents M. Tuffier has devised a method which he calls "arterial intubation." It consists in uniting the divided ends of the vessel by a special tube which allows the circulation to continue for some days; the suppression being gradual, trouble is avoided. The difficulty lies in preventing the blood from clotting in the tube so placed, and to this end M. Tuffier employs instruments of approved value in transfusion. It is known that very thin-walled silver tubes, dipped in boiling paraffin wax so that a thin layer adheres, permit the circulation of blood through them without clotting at all or only very slowly. In Carrel's method of end-to-end anastomosis of blood-vessels[1] liquid vaseline is used for a similar purpose. In support of this new method, which may have abundant application in war surgery, M. Tuffier reported to the Academy of Medicine the case of a man with a transverse wound of the elbow in whom the distal segment of the limb was cold and livid without trace of circulation. Eight and a half hours after the injury, a relatively long time, circulation was re-established by means of a very narrow paraffin tube, 2 mm. in diameter, uniting the brachial with the radial artery. The radial pulse was perceptible for ten hours and the forearm and hand recovered their warmth. Three days later the tube was removed. Success in this case was only partial on account of the narrowness of the tube employed and the relatively long time between the injury and the intubation, but only a part of the hand became gangrenous.

Intensive Treatment of Infectious Syphilides in the Army.

M. Bernheim drew attention in the Paris Medical Society to the necessity of reducing the time of stay in hospital in the case of infectious syphilitic affections. M. Bernheim's technique is as follows. Each day an injection is given of mercuric benzoate (in 1 per cent. solution) or of biniodide in a dose of 3 centigrammes. To aid the action of the mercury and hasten its elimination the patient drinks daily a glass of sulphur water and takes a sulphur bath every third day. He is allowed an extra ration of a litre of milk. During each meal he takes a pilule containing 1 milligramme each of arsenious acid and sulphate of strychnine. He uses a toothbrush with powder of mentholated chalk, and the gums are painted daily with chromic acid 1 : 50. During this intensive cure the patient is carefully watched and the urine examined every sixth day. The local lesions are submitted to active treatment. The chancres are exposed to dry heat by approaching a flat thermo-cautery and then powdered with calomel. Mucous patches are painted successively with silver nitrate 1 : 10 and chromic acid 1 : 15, and papular syphilides covered with Vigo plaster.

Nov. 8th.

[1] See THE LANCET, Oct. 3rd, 1914, p. 836.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Maternity Benefit Problem.

THE drain entailed by the war upon the ultimate and essential wealth of the nation—the lives of its people—has inevitably given point and emphasis to a series of conferences which have been held in the four cities of Scotland. These conferences were arranged by the Scottish Insurance Commission, the parties to them being the Maternity Hospital representatives on the one hand and Scottish Approved Society representatives on the other. The immediate purpose was to discuss the propriety of the societies entering into agreements to make over a portion of the maternity benefit payment to the hospitals in respect of members or members' wives availing themselves of the hospital services. At every one of them the unprecedented importance, in view of the present crisis, of preserving infant life has been emphasised as one of the outstanding essentials of the future well-being of the country. Infant mortality has been greatly reduced in recent years, but the figures submitted at the various conferences show that there is a considerable way still to be travelled before an entirely satisfactory state of matters is arrived at. A point on which statistics are not entirely available, but which is also of importance, is that relating to the impaired health of a large proportion of the mothers of the country. The conferences, it may be confidently stated, will have some practical effect in checking waste and in fostering conditions which will lead to an improved state of matters in this important aspect of national welfare and progress. Every type of Scottish Approved Society—friendly, industrial, collecting, denominational, local, and societies restricted to women—has been represented at the conferences, at which the Scottish Commission was represented by Dr. J. C. McVail, the vice-chairman, and Miss M. M. Paterson, a member of the Commission.

Amongst other experts who dealt with the general question at the conference, Sir Halliday Croom, professor of midwifery in Edinburgh University, laid stress on the waste of infant life and the importance of conserving the children at the present crisis. He mentioned that for the period from 1906 to 1912 infant mortality in England was 115 per 1000 births, or seven or eight times greater than mortality among living people of all ages. While, as Sir Halliday Croom observed, people are realising now more than ever the value of babies to the nation, and while there has been in recent years a remarkable reduction in the rate of infant mortality, it is obvious that a great deal more can be done. To a large extent efforts in this direction will have in view mothers of the working and poorer classes, who have not at their command in ordinary circumstances the means of securing special comfort and attention available to mothers in the wealthier classes. A most praiseworthy solicitude and sympathy for the motherhood of the poorer classes generally marks the point of view of those who have the control and direction of the maternity hospitals in the various centres. An observation by Sir Halliday Croom at the Edinburgh conference met with marked approval. "The mother," he said, "who brings up a large family of healthy children on £1 a week and even less is worthy of our highest admiration and honour. She goes through a very great deal and often leads a life of very great hardship. For this reason she should have the very best help at childbirth and after."

The absence of any kind of control over midwives in Scotland is one of the risks to which attention has been generally directed at the various conferences. The untrained women who sometimes profess to act as midwives were, as Sir Halliday Croom observed, "a law unto themselves." "I do not hesitate to say," he added, "that the invalidism produced in mothers by meddlesome and imperfect attention at this time is well known to every medical man. Among the poorer classes women remain permanently disabled and handicapped for the rest of their lives." The amount of ill-health induced by unskilful midwifery Sir Halliday Croom described as "endless." One cause of mortality and permanent impairment of health is known as "the accidents of childbirth"; and it has been asserted that women only recover completely in such cases where they have the attention and care of skilled persons. One of the most important, and certainly one of the most popular, features of the National Insurance Act has been the provision which it affords for meeting expenditure and providing attention in maternity cases. With practical unanimity the society representatives have signified their whole-hearted concurrence in the justice and desirability of making payments out of the maternity benefits to the hospitals by which the mothers are treated. A considerable number of the Scottish societies have already entered into such agreements, and the public discussion of the question has prompted others to take a similar step. The societies in this matter recognise, by their payments, value directly received. They are paying for services rendered, and they are encouraged to do so the more from the fact that treatment in a maternity hospital is to some extent a guarantee that an insured mother will be free from the effects of the accidents of childbirth, which in other circumstances might make her a chronic invalid and a continual drain upon their funds. In view of the losses of the country, Dr. McVail remarked at the Edinburgh conference, every child born should be made fit for its battle in life, and should be handicapped by no preventable defect. A further inducement to the Approved Societies to entertain a sympathetic interest for the maternity hospitals, expressed financially, is the service of a more general kind rendered by these institutions. It was pointed out more than once that even those who have individually had no direct contact with them owe a considerable debt to the maternity hospitals. It is through the hospitals that those in comfortable circumstances can secure the services of medical attendants and nurses adequately skilled in their work. The maternity hospitals also have a general educative influence which permeates the entire community.

Nov. 9th.

WEST OF ENGLAND EYE INFIRMARY AT EXETER.—At the annual meeting of the subscribers to the West of England Eye Infirmary held at Exeter on Nov. 5th the chairman (Colonel Blake) alluded to the record of Mr. A. C. Roper, the senior surgeon, who, in the absence of the other two members of the honorary medical staff on active service, had attended single-handed during the past 12 months 2600 patients.

Correspondence.

"Audi alteram partem."

THE NEED OF A VISCOSITY STANDARD FOR LIQUID PARAFFIN.

To the Editor of THE LANCET.

SIR,—The articles in your issues of Oct. 2nd and 16th on the subject of liquid paraffin are distinctly interesting at the present time, for the dearth of this material that occurred in the last six months of 1914 appears to have been succeeded this year by the importation of various medicinal oils previously unknown. During 1915 Russian oil has reappeared, but the figures that you publish show clearly that in many cases these Russian oils, however carefully they may be manufactured, are, before finally reaching the consumer, in a distinctly impure condition. In the 23 examples that you quote there are 14 different specific gravities, and while it is possible to produce paraffinum liquidum from many different oils, the present commercially available sources of supply are nothing like 14 in number. Whether for increased profit or to exhaust old, impure stocks is immaterial, but undoubtedly considerable adulteration of Russian oil occurs at the present time, and it is to be hoped that your action will aid in terminating what is almost an imposture.

No more significant fact is brought out in the table you publish than that three samples of the 23 purchased contain marked quantities of sulphur compounds. 13 per cent. is a very high proportion of sulphur-tainted oil. It may indicate widespread indifference to, or defiance of, the Pharmacopœia specification.

The main purpose of this note, however, is to support the suggestion you put forward that a standard of viscosity is required. To-day any standardisation by specific gravity is misleading. Herewith is a table that shows certain properties of medicinal oils which have been prepared from crude oils obtained in widely scattered oil-fields. They are arranged, it will be observed, in order of specific gravity, commencing at 0·936 and ending, in the samples selected, at 0·861. I do not suggest, I do not know, that commercially these "white oils" could be prepared and marketed. In the laboratory they can be produced, and the figures would have been sent to you sooner, but that, from the standard you have taken—viz., viscosity at 100° F.—it was necessary to repeat the tests at that particular temperature.

Origin.	Specific gravity at 60° F.	Viscosity at 100° F. (Redwood).
1. America	0·936	238 seconds.
2. America	0·925	187 ,,
3. Russia	0·898	178 ,,
4. Russia	0·884	300 ,,
5. America	0·884	440 ,,
6. Russia	0·884	67 ,,
7. Russia	0·880	169 ,,
8. America	0·880	118 ,,
9. Russia	0·873	128 ,,
10. America	0·865	118 ,,
11. Russia	0·864	71 ,,
12. America	0·861	198 ,,

Nos. 4, 5, and 6 are very instructive. The specific gravity is the same—0·884 at 60° F.; the viscosities at 100° F. are respectively—300 seconds, 440 seconds, and 67 seconds. Either No. 4 or No. 5 would make an excellent internal lubricant. No. 6 would be useless. It is very clear that what the medical man requires is accurate standardisation, a definite statement that the viscosity of a particular medicinal oil is within a given range of seconds at a given temperature. To prescribe on specific gravity leads to confusion—may lead to trouble and disappointment.—I am, Sir, yours faithfully,

Newcastle-on-Tyne, Nov. 8th, 1915. ROBERT A. BOLAM.

CEREBRO-SPINAL FEVER.

To the Editor of THE LANCET.

SIR,—The coming winter will probably bring with it a number of cases of this disease, amounting to an epidemic. My connexion with it is in matters pathological for the present, but I think there is a direction in which treatment has not been sufficiently pushed, and this is important.

While in Katanga I had a large number of cases of trypanosomiasis where the micro-organism was found in the cerebro-spinal fluid, and I injected after a lumbar puncture a number of drugs in hopes of saving the patient, without any untoward result therefrom. I am convinced that we have here a method of introducing medicaments which has not been sufficiently exploited. I have seen cases of cerebro-spinal fever do well after merely washing out with normal saline after drawing out the fluid. Mercuric chloride (1/50 grain) has been injected for general paralysis of the insane, it is said with no evil results. It also occurs to me that some of the colloidal metals might be worth trying, beginning with minute doses. The injection also of the patient's own serum appears founded on good theory. I am, Sir, yours faithfully,

SHEFFIELD NEAVE,
Ipswich, Nov. 7th, 1915. Temporary Captain, R.A.M.C.

AN OPERATION FOR CATARACT.

To the Editor of THE LANCET.

SIR,—The operation which this preliminary note briefly describes embodies several new features. It was conceived and perfected by my assistant, Pundit Hari Shanker.

The essential feature of the operation is a preliminary conjunctival flap cut so as not to hamper the movements of the knife in making the incision in the eyeball. The lens is removed entire in its capsule either with or without a preliminary iridectomy.

The advantages of the operation as shown by the results obtained in some 1500 cases performed this year are:—

1. The wound in the eyeball is closed at once by the flap, so that the risk of subsequent infection is *nil*.

2. Prolapse of the iris and vitreous are prevented from occurring.

3. The flap is firmly adherent to the globe within a few hours, and in a large majority of cases the dressing can safely be then removed.

4. Cataract cases are now treated in this hospital as out-patients, and they can go home immediately after operation, returning next day to have the dressing removed permanently.

5. No photophobia is present subsequent to the operation ever on the second day, when the patients are provided with glasses and can see well.

6. The usual corneal astigmatism is very much less than is generally found after other operations.

I am, Sir, yours faithfully,

M. CORRY, M.D. Edin.,
Delhi, Oct. 11th, 1915. Major, I.M.S.; Chief Medical Officer.

THE EXTRACTION OF A BEAN FROM THE NOSTRIL.

To the Editor of THE LANCET.

SIR,—While in medical charge of the Arrondissement of Studenitza by the Serbian Government, as Director of the Hospital at Raschka, surgery of a varied nature fell into my hands; and to me it is very questionable whether so-called minor surgery does not call for the exercise of one's wits quite as much as the more serious matter.

The staple article of diet of the country is the small bean, known as the French haricot; and in order to keep the children quiet they are given these beans with which to play, when the result is that they oft-times find their way into the nasal passages. On occasion the mother readily removes them, or ordinary forceps speedily settles the matter. In one case, however, a child 2 years of age was brought to me with a bean firmly wedged into the right nostril, so high up that the exercise of any force whatever bid fair, on account of the sensitiveness of the mucous membrane, to cause the onset of convulsions in the screaming child. One is told that soda-water wire makes an efficient instrument. But whence obtain it? And the bean may be pushed backwards into the gullet; in which case, however, one remembers the opening into the air-passages. I administered a whiff of chloroform; when, however, I came to use the forceps available they were ill adapted to seize the foreign body, and I was far removed from others of a finer nature. With an ordinary director, however, and making a fulcrum of the resilient mesial cartilage, the point of the instrument passing behind the bean, the latter, by gentle forward pressure, was readily brought to light.

I am, Sir, yours faithfully,

JOHN FURSE MCMILLAN, M.R.C.S.Eng.,
Late Royal Army Medical Corps.

Sandown, Isle of Wight., Nov. 5th, 1915.

A "NEW SIGN" IN PULMONARY DIAGNOSIS.

To the Editor of THE LANCET.

SIR,—My appreciation of the very valuable and enlightening attention which Dr. William Ewart has bestowed on the signs described by me, and of his very kind and flattering references to my humble thumpings is not the less real because this expression of it is somewhat belated. Dr. Ewart's two letters contain a mine of interesting information and speculation into which I feel at the moment hardly qualified to probe, but what elicits my especial gratitude is the firm hold he has kept on the main facts, since these might so easily die of suffocation amid a crowd of theoretical considerations. "His transdorsal subresonance," he says, "and the scapular as well are undoubted realities"; and "the phenomenon itself matters much for us, much less its mechanism." This confirmation of the main facts and their significance, coming from so distinguished a source, seems to me most vital at this stage—at any rate it forms a most needful introduction to theoretical considerations as to their mechanism of production. With regard to this latter Dr. Ewart appears to favour thoracic muscle rather than lung as the explanation of the phenomenon, and I am not in a position to refute his arguments. At the same time I do not feel convinced that the influence to which he alludes of "unfavourable" positions in nearly eliminating the bands of dullness may not be due to mere obscuration by muscular contraction of an underlying, but unaltered, lung change. In addition, I am still impressed with the absence of relationship of these bands of dullness, both upper and lower, with the distribution of the muscle layers of the back. As to the muscle groupings hinted at by Dr. Ewart in his letter of Sept. 18th as possibly responsible, or those suggested by Dr. Walter Verdon in THE LANCET of to-day (Oct. 30th), I should have considered that either could reasonably claim exoneration on grounds of "alibi." Dr. Ewart's discovery that the patient can himself appreciate the appearance and disappearance of the sign is a highly interesting point and might, as he suggests, facilitate its study.

Dr. Crawshaw Holt seems to me to have been mapping out the ground dullnesses of gross disease on to which the areas described by me are superimposed. Dr. C. Muthu's views of tuberculosis seem too revolutionary to invite discussion within the compass of a letter—so revolutionary, indeed, that I seem to see the word "pretuberculous" in his letter used with some justification for the first time; in the light of modern knowledge it is generally a misnomer, for which I am sometimes tempted to suggest the word "subtuberculous" as a substitute. His laudable caution against diagnosing pulmonary tuberculosis merely from impaired resonance certainly has my support, but tuberculosis can with advantage be suspected before it is diagnosed. Dr. Walter Verdon offers a myogenic explanation of the bands of impairment, as does Dr. Ewart. There are in his letter one or two phrases, possibly attributable to me, but for which I desire to disclaim responsibility. Thus he speaks of "the new signs pathognomonic of pulmonary tuberculosis described by Dr. Clive Riviere," but I do not hold them pathognomonic of tubercle, but rather common to all causes of irritation of the lung parenchyma. He remarks further that "the new sign is associated with shortening of the lungs" where I should have preferred to see "the new sign forms part of Abrams's reflex of contraction which is associated with shortening of the lungs," since the "shortening of the lungs" was not discovered by me. His separation, moreover, of the lower bands of dullness into inner, more constant, and outer less noticeable parts is, perhaps, a refinement from his own personal experience. I have no knowledge of this division.

At the conclusion I would like, if I may, again to lay stress on two points already touched on in my original communication.

Firstly, to those who find the bands of dullness and seek to utilise them in the diagnosis of disease I would urge that the sign be looked for before any, even the lightest, percussion of the chest wall be resorted to elsewhere, since otherwise, in some chests, the reflex may be unconsciously produced artificially.

Secondly, to those who experience difficulty in identifying the bands of dullness, I would recommend brisk friction of the back before an attempt is made to map them out. Such friction produces the "lung reflex of expansion" and heightens the contrast between the dull areas and the surrounding, now more resonant, lung (or must I say chest?). This manœuvre illustrates the highly curious fact about these two "reflexes of contraction and expansion" that they are by no means antagonistic and mutually exclusive since both can be, and often are, present at one and the same moment.

I am, Sir, yours faithfully,

Queen Anne-street, W., Oct. 30th, 1915. CLIVE RIVIERE.

Obituary.

GEORGE COATS, M.D. GLASG., F.R.C.S. ENG.,

ASSISTANT SURGEON, ROYAL LONDON OPHTHALMIC HOSPITAL; ASSISTANT OPHTHALMIC SURGEON, ST. MARY'S HOSPITAL.

THE death of Mr. George Coats at the early age of 39 is a serious loss to the science of ophthalmology in this country. Though the record of his work is comprised within a period of a little over ten years, it includes papers which have given him a more than European reputation, and work which is already classical. His modest and retiring disposition, and latterly his ill health, prevented him from being known much beyond the circle of ophthalmic surgeons, but in that circle there were very few for whom a more distinguished career, especially in scientific work, could be looked for.

Mr. Coats was the fourth and youngest son of the late Mr. Alan Coats, and a nephew of the distinguished professor of pathology in Glasgow University, Dr. Joseph Coats. He was born in Paisley in 1876 and entered Glasgow University in 1892 as a medical student. He took the degrees of M.B., Ch.B. in 1897 and M.D. in 1901. After holding resident appointments in the Royal, Western, and Eye Infirmaries in Glasgow, Mr. Coats decided to devote himself to ophthalmic surgery, and with that end in view he studied for some time in the great ophthalmic clinic of Vienna, making also a cycling tour of visits to clinics at Munich, Freiburg, and Zürich. Coming to London in 1902, he started work at the Royal London Ophthalmic Hospital. In 1903 he was admitted to the Fellowship of the Royal College of Surgeons of England, and in 1905 he was appointed to the post of curator and pathologist at Moorfields. In this post Mr. Coats at once showed that he had found his proper *métier*. He was nowhere happier than when thoroughly immersed in intricate pathological and histological work, and he had been heard to say that all he hoped for from practice was to make enough to allow him to live and to devote the bulk of his time to the scientific work which was his greatest pleasure. His pathological bent was evident quite early in his career, when he took the first place in both pathological classes in Glasgow; and before his appointment as curator he had already published valuable papers on vascular diseases of the eye. From the time of his appointment there came forth a steady stream of papers, all characterised by the same lucidity of thought and extreme care of statement, so that though they embody a great mass of new and original work, there is practically nothing in any one of them which even the keenest criticism could modify. In 1906 he was elected assistant ophthalmic surgeon to the Great Northern Central Hospital, and in 1909 assistant surgeon to the Royal London Ophthalmic Hospital. He was Hunterian professor of the Royal College of Surgeons of England in 1910, and took for the subject of his two lectures "Congenital Abnormalities of the Eye." In 1911 he was appointed assistant ophthalmic surgeon to St. Mary's Hospital. For a few years he was also ophthalmic surgeon to the Hospital for Sick Children, Great Ormond-street, but on his appointment to St. Mary's he resigned this as well as his connexion with the Great Northern Central Hospital. At the time of his death he had just completed his three years' term as secretary of the Ophthalmological Society.

Coats's first important paper appeared in Vol. XVI. of the Royal London Ophthalmic Hospital Reports in 1904 on Thrombosis of the Central Vein of the Retina, and up to the end of 1914 he had published no fewer than 56 important papers. His favourite subject undoubtedly was vascular disease of the retina, and 17 of his contributions deal with this subject. The most important of these on Exudative Retinitis and on Obstruction of the Central Vein of the Retina formed the basis of the two great papers which gave Coats's name a European repute. They both appeared in v. Graefe's *Archiv für Ophthalmologie*, the one in 1912 and the other in 1913. The paper on Massive Exudate in the Retina defined as a clinical and pathological entity a disease which had not before been recognised as such, and so thoroughly was the work done that little can now be added to our knowledge of it from the pathological side. Another series of papers dealt with congenital abnormalities, and this formed the basis of his Hunterian lectures. He was one of the very few ophthalmic surgeons who interested themselves seriously in the comparative anatomy and pathology of the eye, and he spent much of his spare time in the Zoological Society's Gardens. Almost the last paper which he read (at the annual meeting of the Ophthalmological Society of the United Kingdom, April, 1915) was on the Retina of the Fruit-eating Bat. Only a complete bibliography, however, could show the many lines on which Coats had worked. The estimation in which Coats's work was held by his colleagues was shown when in 1912 the Ophthalmological Society awarded him the Nettleship medal and prize. His early death is a severe loss to scientific ophthalmology, and all who knew him will find an echo of their feelings in the following appreciation of him which has been written by an intimate friend.

"Coats's character was distinguished by a transparent and fearless honesty which, in combination with a mind trained to accept only the highest standards and an indefatigable energy of purpose, placed his work, in the many and varied capacities which he filled, beyond the reach of hostile criticism. Accurate in observation and swift in the recognition of essentials, his was one of those rare intellects combining in well-balanced proportion the critical and the constructive faculties. These attributes of mind are well illustrated in his original description of exudative retinitis, which he was the first to classify as a definite clinical and pathological entity, and which is universally recognised, even amongst the Germans, as Coats's disease. Apart from lucid analysis, clear-sighted induction, and originality of interpretation, his scientific contributions are characterised by an exceptional thoroughness of histological investigation, and by the evidences of excellence in laboratory technique upon which they rely for foundation and illustration. The manual dexterity which served to such good purpose in the laboratory was in evidence in the operating theatre, and under the direction of a surgical judgment of high order had already brought Coats into the first rank as an operator. Although of an exceedingly retiring disposition, Coats's personality was such as to inspire a deep affection in those who were privileged to the intimacy of his friendship. Eminently tolerant and sympathetic, and incapable of an unkind thought, the integrity of his character and the clearness of his judgment made him an ideal counsellor and friend, while the extensive range of his reading, coupled with an unusually retentive memory and a certain quiet sense of humour, added to the charm of his companionship.

Mr. Coats was passionately fond of music, of which he possessed a wide knowledge, and took a pride in his extensive musical library; scarcely a day was allowed to pass without some time being spent in the interpretation of some portion of it."

Mr. J. B. Lawford writes: "I am glad to have the opportunity of voicing the deep regret which the untimely death of George Coats has aroused among his professional friends and colleagues, and of giving expression, in some degree, to my own appreciation of his scientific attainments and his personal attributes. His death in the plenitude of his professional career is a grievous loss to British ophthalmology, and a very serious blow to the hospitals to which he was attached. The excellence and the high standard of his scientific work had already gained for him a well-merited position in his profession, and there is no doubt that had he lived he would in a few years have become one of the recognised leaders of scientific ophthalmology. That was not to be, however, and it is but left to us to cherish the memory of a very valued friend and colleague, whose devotion to his profession, in spite of indifferent health, will remain as an inspiring example and a tribute to his sterling character."

BRIAN O'BRIEN, M.D. DUB.,

MEDICAL INSPECTOR OF THE LOCAL GOVERNMENT BOARD, IRELAND.

Dr. Brian O'Brien, medical inspector of the Irish Local Government Board, succumbed to a virulent attack of cerebro-spinal meningitis on Friday, Oct. 29th. He himself thought his symptoms at first were due to influenza, but on removal to Purdysburn Fever Hospital lumbar puncture and cultivation of the fluid removed confirmed the clinical diagnosis of cerebro-spinal fever. Under injections of Flexner's serum his condition improved for a time, but a failing heart and œdema of the lungs ended the sad story exactly one week after its commencement.

A grandson of William Smith O'Brien, M.P., leader of the "Young Ireland movement," Brian O'Brien was born in 1872 in Limerick, and educated at Foyle College, Londonderry, and Trinity College, Dublin, where he graduated in 1896 as M.B. with first-class honours, proceeding to the M.D. in 1898. He began practice at Fahan, where he was appointed dispensary doctor, and he afterwards filled a similar position at Portsalon; but about 14 years ago he came to Belfast, where he began city practice, and was appointed one of the surgeons to the Royal Irish Constabulary, and he was also elected a member of the staff of the Belfast Hospital for Sick Children. In 1910, on the resignation of Dr. C. J. Clibborn, he was appointed a medical inspector to the Irish Local Government Board, continuing to reside in Belfast. He was a courteous and painstaking official, and well versed in modern medicine. By a sad coincidence one of the last of his reports to his department was one in which he dealt with cerebro-spinal meningitis. "Since the beginning of the year 1915,' he wrote, "this disease has made its appearance in my district in epidemic form." It is a curious commentary on his mysterious illness that he had not knowingly been in contact with a single case of cerebro-spinal meningitis for half a year before he was taken ill himself; and at present, we are informed, only two patients (both convalescent) suffering from this dangerous malady are in Purdysburn Fever Hospital. Dr. O'Brien leaves a widow and three children to mourn his death. He was buried on Monday, Nov. 1st, at Fahan, co. Donegal.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Wounded.

Lieutenant A. L. E. F. Coleman, R.A.M.C., attached to the 11th Battalion Essex Regiment.

Captain J. E. Stacey, R.A.M.C., attached to the 5th Battalion Royal Berkshire Regiment.

Lieutenant E. U. McWilliam, R.A.M.C., attached to the 4th Battalion Royal Scots Fusiliers (T.F.).

Captain T. H. Wilkins, R.A.M.C.

Lieutenant W. R. Stewart, I.M.S., attached to the 1st Battalion 4th Gurkhas.

Captain R. V. Morrison, I.M.S.

Lieutenant G. Richardson, R.A.M.C., attached to the 6th Dorset Regiment.

Lieutenant C. J. H. Sharp, R.A.M.C., attached to the 5th Duke of Wellington's Regiment (T.F.).

THE HONOURS LIST.

The following promotions and appointments of medical officers for gallant conduct and distinguished service in the field have been made:—

Distinguished Service Order.

Major Geoffrey Wallace Grainger Hughes, R.A.M.C., 6th Cavalry Field Ambulance.

For conspicuous ability and good work in arranging for the care and evacuation of the wounded at Loos on Sept. 26th and 27th, 1915. A large number of wounded infantry were tended and evacuated by the two cavalry field ambulances, in addition to wounded cavalrymen. During the greater part of the time Loos was under heavy bombardment.

Captain Whiteford John Edward Bell, R.A.M.C., No. 2 Field Ambulance.

For conspicuous gallantry and devotion to duty on all occasions, notably near Loos between Sept. 28th and Oct. 1st, 1915, when he visited the advance bearer-post day and night under continuous shell fire, and personally supervised the arrangements for collecting and evacuating the wounded in that area. Captain Bell has commanded a bearer division since August, 1914.

Captain (temporary Major) John Wilfred Bird, R.A.M.C. (T.F.), 6th London Field Ambulance.

For conspicuous devotion to duty during operations at Maroc and Loos between Sept. 25th and 30th, 1915, in dealing with casualties. On one occasion he worked for 23 hours without any cessation in dressing and tending the wounded. He set a fine example, which had far-reaching results.

Temporary Captain Charles Stewart Parnell Hamilton, R.A.M.C., attached 2nd Battalion the Buffs (East Kent Regiment)

For conspicuous gallantry and devotion to duty from Sept. 27th to 30th, 1915, in France. He dressed the wounded in the firing line, being for hours together under heavy shell fire, and went to points of great danger, often to where bombers were actually fighting.

Captain Frank Robison Kerr, R.A.M.C., Special Reserve.

For conspicuous gallantry and splendid devotion to duty at Cuinchy on Sept. 25th, 1915. After an unsuccessful attack on the enemy's trenches this officer crawled over our parapet and brought in a wounded man from about a dozen yards outside in full view of the enemy at a range of only 70 yards. He then went out again for 30 yards and rescued a man whose thigh had been broken, being fired at the whole time. During the night of Sept. 25th Captain Kerr was out attending to the wounded for two hours under constant machine-gun and rifle fire, and on the night of Sept. 27th-28th he went to within 25 yards of the enemy's position to rescue a man reported wounded, but found that he was dead.

Captain Arthur John Alexander Menzies, R.A.M.C., attached 1st (Royal) Dragoons.

For conspicuous gallantry and devotion to duty from Sept. 26th to 29th, 1915, in Loos. Captain Menzies was unremitting in his attention to the wounded of all units. He was twice seen carrying wounded on a stretcher under rifle fire, and for 55 hours he was continually exposing himself to heavy shell fire while carrying out his duties.

Military Cross.

Captain Frank Percy Freeman, R.A.M.C., Special Reserve, attached 23rd Field Ambulance.

For conspicuous gallantry and devotion to duty during operations near Hulluch from Sept. 25th to 28th, 1915. He brought in and attended to the wounded during four consecutive days and nights, repeatedly going out under heavy fire. By his personal bravery and energy he set a splendid example to his men.

Captain James Ronald McCurdie, R.A.M.C., Special Reserve, attached No. 2 Field Ambulance.

For conspicuous gallantry and devotion to duty from Sept. 25th to Sept. 27th, 1915, at Le Rutoire Farm, where, although continuously exposed to shell fire, he collected and treated the wounded. By his efforts and organising power a large number of wounded were collected. Captain McCurdie set a fine example to the officers and men under him in most trying circumstances.

Temporary Captain James Murray McLaggan, R.A.M.C., attached 3rd Battalion Royal Fusiliers (City of London Regiment).

For conspicuous gallantry and devotion to duty during the operations between Sept. 27th and 30th, 1915, when he attended to the wounded in the firing line under heavy shell and rifle fire. His coolness and skill undoubtedly saved many lives. For three days and four nights he worked incessantly with unflagging energy.

Temporary Captain Charles Joseph O'Reilly, R.A.M.C., 21st Field Ambulance.

For conspicuous gallantry and devotion to duty during operations near Hulluch from Sept. 25th to 28th, 1915. He brought in and attended to the wounded for four consecutive days and nights under heavy fire, notably on Sept. 27th, when he voluntarily went out to collect wounded under very heavy shell fire. He has consistently set a splendid example to his men.

Captain Thomas Walker, R.A.M.C., Special Reserve, attached No. 2 Field Ambulance.

For conspicuous gallantry and devotion to duty from Sept. 25th to 27th, 1915, when he worked continuously collecting wounded from the area, Lone Tree to Hulluch road, and beyond. This area was under continuous shell-fire, and at first under machine-gun fire also.

Temporary Lieutenant David Carnegie Alexander, R.A.M.C., attached to 5th Battalion The Queen's Own Cameron Highlanders.

For conspicuous gallantry and devotion to duty between Sept. 25th and 27th, 1915, near "Fosse 8." He attended to and got into shelter many wounded men who were lying in the open under enfilade machine-gun fire, and on several occasions at the Manager's House at the Fosse carried out his duties under heavy shell fire.

Temporary Lieutenant John Bruce Baird, R.A.M.C., No. 1 Field Ambulance.

For conspicuous gallantry and devotion to duty from Sept. 25th to 27th, 1915, when in charge of different bearer sections collecting wounded in the area between Lone Tree and Hulluch road under shell and machine-gun fire.

Temporary Lieutenant Bernard Score Browne, R.A.M.C., attached 2nd Battalion, Cheshire Regiment.

For conspicuous gallantry and devotion to duty near Vermelles. He spent the whole night of Oct. 2nd-3rd searching for and carrying back wounded who were lying between our own and the enemy's lines, which were only 200 yards apart. The enemy were firing, and the ground was lit up by flares. After daybreak he carried back three more men under a heavy fire. At one time he tended the wounded within 15 yards of the enemy's trenches. By his courage and ceaseless work all the wounded in his area were brought in.

Temporary Lieutenant George Rankine, R.A.M.C., attached Headquarters, 9th Division, R.E.

For conspicuous gallantry and devotion to duty from Sept. 26th to 28th, 1915, at Sailly and Vermelles, when attending to and evacuating the wounded. On one occasion he went with a party of bearers as far as Hohenzollern Redoubt, and, in spite of shell fire and bombing, assisted to get back many wounded. On the return journey many of the bearers were killed and wounded by a shell, and Lieutenant Rankine carried in a wounded man on his back.

In connexion with the military and naval operations in the Dardanelles, the following medical officers have had honours conferred upon them for distinguished services:—

C.M.G., Third Class, additional members.

Colonel the Hon. Joseph Livesley Beeston, Australian Army Medical Corps.

Lieutenant-Colonel Charles Mackie Begg, New Zealand Medical Corps.

Distinguished Service Cross.

Surgeon John Pratt, R.N.

The President of the French Republic has conferred upon the following medical officer the decoration of the

Legion of Honour, Croix de Commandeur.

Surgeon-General Sir Arthur Thomas Sloggett, K.C.B., C.M.G., K.H.S.

MENTIONED IN DESPATCHES.

The following additional names of medical officers are mentioned in a further despatch from Sir Ian Hamilton, dated Sept. 22nd, in connexion with the operations in the Dardanelles:—

Staff.

Lieutenant-Colonel A. E. C. Keble, R.A.M.C.
Captain J. Hare, R.A.M.C.

Royal Army Medical Corps.

Lieutenant-Colonel L. Humphry.
Major E. McDonnell.
Major A. McMunn.

Royal Army Medical Corps (T.F.).

Lieutenant-Colonel J. J. O'Hagan.

Royal Naval Division (Staff).

Fleet-Surgeon A. Gaskell.

1st Field Ambulance.

Staff-Surgeon A. F. Fleming, R.N.

2nd Field Ambulance.

Temporary Surgeon H. L. G. Foxell, R.N.

3rd Field Ambulance.

Fleet-Surgeon E. J. Finch, R.N.

Australian and New Zealand Forces (Staff).

Colonel N. Manders, Army Medical Service (killed).

Australian Army Medical Corps.

Colonel J. L. Beeston.
Lieutenant-Colonel H. W. Bryant.
Captain R. W. Chambers.
Captain H. J. Fry.

New Zealand Medical Corps.

Lieutenant-Colonel C. M. Begg.

Indian Medical Service.

Captain T. J. C. Evans.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Lieutenant-Colonel W. H. Wright, last surviving son of the late Dr. T. G. Wright, of Wakefield.

Lieutenant B. Hall, 2nd South Staffordshire Regiment, twin son of Dr. W. Hall, of Hodnet, Shropshire.

Second Lieutenant C. E. Taylor, 1st West Yorks Regiment, son of Dr. M. H. Taylor, coroner for Surrey (Kingston District).

CENTRAL MEDICAL WAR COMMITTEE: THE POSITION OF MEDICAL STUDENTS.

A meeting of the Central Medical War Committee (War Emergency Committee) was held on Wednesday last, when the chairman of the Executive Subcommittee, Dr. C. Buttar, reported on an interview accorded to Major Galloway, as the representative of the Subcommittee, by Lord Derby, the Director-General of Enlistment. Major Galloway was accompanied by Dr. Norman Walker, the convener of the Scottish Medical Service War Emergency Committee, and they were introduced to Lord Derby by Sir Alfred Keogh as the representatives of committees which were working in close coöperation with the Army Medical Department and the War Office. Major Galloway explained to Lord Derby that the Central Medical War Committee was engaged in helping to provide medical officers in sufficient numbers for the army while arranging for an efficient medical service for the civilian population, and one reason for seeking the interview with Lord Derby was to point out to him as the special head of recruiting, that individual medical practitioners had been canvassed by local war committees to join the army with combatant commissions. Lord Derby stated that these local committees should make no attempt to recruit medical men for combatant commissions, such attempts having been apparently made in error, while he recognised the Central Medical War Committee as a recruiting committee for the Royal Army Medical Corps. On the subject of recruiting medical students Lord Derby's attitude was clearly that already expressed by the War Office. He considered that the first-, second-, and third-year students ought to accept combatant commissions in the army.

An interesting debate ensued upon Major Galloway's report, in the course of which Professor Shipley, Master of Christ's College, Cambridge, said that he sympathised with the students, who were in a very difficult position, and he asked the Central Medical War Committee to pass a resolution that the first-, second-, and third-year students should be advised to continue their studies, as there was no doubt whatever there would otherwise be a serious shortage in the ranks of the medical profession.

Dr. Frederick Taylor informed the Committee that in company with the President of the Royal College of Surgeons of England, the Vice-Chancellor of the University of London, and the Chairman of the Deans of the London Teaching Schools he had seen Lord Derby recently, when the Director-General of Enlistment had said that all medical students other than fourth- and fifth-year men ought to accept commissions in the army. Dr. Taylor pointed out that the question had not been the subject of a resolution before the General Medical Council, although the President, Sir Donald MacAlister, in his presidential address, had presented the view of the War Office that the junior students must not be advised to refuse combatant commissions.

Colonel Bolam said that the first- and second-year students should accept combatant commissions and proposed an amendment to Professor Shipley's motion to that effect. This was seconded by Sir James Barr.

Mr. Bishop Harman said that the first- and second-year students should accept combatant commissions and that the fourth and fifth should remain at their medical studies; but he thought that the third-year students occupied a different position, as their studies, as far as they had gone, would make them of real use to the army.

Sir Clifford Allbutt pointed out that the use of the phrase "second-year" and "third-year" student did not mean anything very definite; that the real break in the medical career was at the examination for the Second M.B. He thought that those medical students who had passed their Second M.B., though not necessarily in their third year, might be of medical service in the army. The following amendment to Professor Shipley's motion was then put to the vote and carried:—

> That the Director-General of Military Services be approached with a view to ascertaining whether it be possible to offer commissions as second lieutenants or surgeon probationers in the Royal Army Medical Corps to third-year medical students.

This amendment was passed as the substantive resolution.

TYPHUS FEVER IN SERBIA.—Dr. R. O. Moon delivered his third and last Chadwick public lecture, entitled "Prophylaxis and Treatment," at the Royal Society of Medicine on Nov. 3rd, with Sir William J. Collins, K.C.V.O., chairman of the Chadwick trustees, in the chair. The lecturer admitted that our knowledge of typhus does not at present admit of any direct prophylaxis. As we were still ignorant of the micro-organism giving rise to the disease the soil upon which it flourishes must be attacked. Thus overcrowding must be combated by free ventilation, which is more easily said than done unless the poorer classes can be adequately clothed and housed. Personal cleanliness, too, is an important means of protection; owing to the frequent ablutions enjoined by their law the Mussulman population suffered less from the recent epidemic than the rest of the inhabitants. To keep soldiers in time of war continuously and adequately supplied with suitable nourishment was always a most difficult problem, never so satisfactorily solved as by the English and French in the present campaign, and hence their relative immunity from disease. These general principles of hygiene were put into practice, as far as possible, by the various British and foreign medical missions working in Serbia, and with such success that by the end of May typhus had ceased to be a serious danger. In particular, our countrymen at Uskub were able to establish a special typhus hospital owing to the energy of Lady Paget and the British Red Cross Society in coöperation with the Serbian authorities, while the Scottish Women's Hospital at Kragujevatz—the only arsenal in Serbia—toiled hard and devotedly in perhaps the worst plague spot in Serbia. Much evidence pointed to the contagion of typhus being carried by lice, and this enabled us to attack the disease more directly. Anointing the body with some form of petrol is one of the easiest ways of coping with the danger; vermijelli was one of the best known preparations for this purpose, but ordinary kerosene is an efficient and economical insecticide. That lice are not the only means of transmitting the contagion of typhus was the opinion of many Serbian doctors who had had much experience of the disease and who held to the direct inhalation theory. The treatment of typhus was a much simpler matter than that of enteric fever, because of the absence of local intestinal lesion. Being a very devitalising disease and causing much prostration, typhus required what is known as a supporting treatment, but this did not imply that

alcohol should be administered as a routine; it should, in fact, only be given in exceptional cases to combat cardiac weakness. Hitherto the main triumphs of public health and sanitary work had been in connexion with acute diseases, of which typhus was the classic example. The disappearance, too, of cholera, of relapsing fever, and the diminution of enteric fever might be set down to sanitary science. Advancing civilisation certainly had diminished acute disease, but by increasing the complexity of life both for the mind and the body it would almost seem to have added to the number of chronic diseases. But sanitation, as Chadwick understood it, went far beyond the getting rid of epidemics and acute diseases and joined hands with education, which by inculcating greater sanity and sobriety in our lives might achieve as great a diminution of chronic diseases as we have already effected in the case of acute diseases.

THE INDIAN MEDICAL SERVICE AND THE WAR.—It may not be generally known how great has been the depletion of Indian Medical Service officers in civil employment consequent upon the war. The case of Bihar and Orissa may be quoted, and what has happened there must have occurred in some other provinces. Out of the 18 Indian Medical Service officers serving in the province whom the local government are required to surrender on mobilisation 14 almost at once reverted to military duty. The demands for their services were mostly made by telegraph and hence the readjustment of work had to be carried out under some difficulties. Later another officer was transferred to the United Provinces and a second retired. From the annual report on hospitals and dispensaries in the province it appears that the measures taken to fill the gaps were quite effective. The places in the regular medical line were, as a rule, first filled up by the civil assistant surgeons, who were at the time in charge of the sadr hospitals. Six civil surgeoncies are now held by the more senior of this class and in two instances planters' doctors have been engaged temporarily as civil surgeons. Colonel Drury, provincial inspector-general of civil hospitals, notes with some pride that notwithstanding the deficiency in the strength of the superior medical staff, the work of the department has been on the whole carried on smoothly and satisfactorily. Medical and surgical practice has been advanced, and this he rightly considers is highly creditable to all the officers who were appointed to make good the losses in personnel. No doubt in other provinces similar good results have been obtained.

"CHRISTMAS IN WAR-TIME" BAZAAR.—Princess Alexander of Teck, President of the Prisoners of War Section at the Christmas in War-time Bazaar, to be held at the Albert Hall on Dec. 8th, appeals for support in providing Christmas fare for those who are now enduring the grievous penalty of imprisonment in a foreign land. The following articles have been suggested by the organisers as suitable to send: Socks, mufflers, &c., preserved foods of all kinds, cigarettes and smoking necessaries, games, and plain Christmas cakes and puddings. Six Allied nations—France, Russia, Italy, Japan, Serbia, and Belgium—will be represented and special tea-rooms arranged for each. The stalls, held by distinguished people, will be called: (1) Hospital Comforts; (2) The Fighting Forces; (3) Made by the Wounded; (4) British Prisoners of War; and (5) Dependents, or Christmas Presents Suitable for those at Home. Entertainments will be given by leading members of the theatrical profession. Gifts should be addressed to the Gifts Secretary, "Christmas in War-time," the Albert Hall.

LIFE INSURANCE AND THE WAR.—Those combatants who were insured prior to the outbreak of the war are enjoying the advantages of the old rates of premiums, but new recruits to the forces desirous of effecting insurances find the present rates of premiums practically prohibitive. In view of this difficulty the Clerical, Medical, and General Life Insurance Society, of 15, St. James's-square, London, S.W., are issuing a new form of policy at the ordinary scale of premiums; but, should the assured die whilst engaged in the war, instead of the ordinary death benefit accruing, twice the amount of the premiums paid will be returned. If, at the end of the war, the directors of the society are satisfied as to the health, environment, and occupation of the assured, the policy may become unconditional. If the assured be not found acceptable at the ordinary rate of premiums at the end of the war, a special surrender value of twice the premiums paid will be made.

OBITUARY OF THE WAR.

SYDNEY McALPINE FRASER CESARI, M.B., CH.B. EDIN.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain S. McA. F. Cesari, who was killed in France on Oct. 3rd at the age of 25, was second son of the late Mr. Edward Cesari, of Inverness and Birnam. Educated at Perth Academy, he was an outstanding and popular boy, passing his examinations with seeming ease; he was at the same time one of the best bats in the Academy, and probably the strongest Rugby player that the school has ever produced. At Edinburgh University, where he graduated M.B., Ch.B. in 1913, he had taken medals in surgery and anatomy and on qualification he held house appointments at Greenock and Edinburgh infirmaries. He went to France in August, 1914, as lieutenant in the Royal Army Medical Corps, and was promoted captain last July. His commanding officer writes that he was handing over in the trenches to another field ambulance when he was hit by a bullet and died shortly afterwards, adding: "I am deprived at once of a friend and a brave and courageous officer." His mother received a telegram of regret from Lord Kitchener. Quiet and unassuming in manner, he gained for himself a wide circle of friends wherever he was situated, and his loss is much felt in Perth and district.

THOMAS JONES LATHAM, M.R.C.S., L.R.C.P. LOND.,

LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant T. J. Latham, who was killed in action in France on Oct. 3rd, was the second surviving son of the late Dr. Chas. W. Latham, of Hackney-road, N.E. He received his general education at the Grocers' Company's School at Hackney, and after matriculating at the London University entered the London Hospital as a student, taking the Buxton entrance scholarship, and later becoming prizeman in minor surgery. He qualified in 1906, and joined his brother, Mr. D. W. F. Latham, in general practice in Barnsbury, joining the Royal Army Medical Corps in October, 1914. An ardent worker in the anti-tuberculosis cause in Islington, he acted as secretary to the Islington Tuberculosis Dispensary, and at the time of joining the army was honorary treasurer to the L.C.C Islington schools treatment centre. He was attached to 2nd Cavalry Division, Royal Engineers, and one of his fellow officers writes: "He was absolutely fearless under fire, and his treatment of the wounded was splendid. He was killed by a fragment of shell as he was going to the aid of a wounded soldier." His mother received a telegram of Royal sympathy. A contemporary writes: "He had a cheery word for everyone, and his loss will be felt by a large circle of friends."

EDWARD JOCELYN NANGLE, M.R.C.S., L.R.C.P. LOND.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain E. J. Nangle, who was killed in action in France on Sept. 26th at the age of 27, was born in Cape Colony and was educated at St. Andrews, Grahamstown, and Caius College, Cambridge, entering at St. Mary's Hospital in 1910. He qualified in 1912, and after acting as house physician and house surgeon was appointed second assistant pathologist. When war broke out he applied for a commission in the Royal Army Medical Corps, and after a few weeks in England became attached to the 1st Loyal North Lancashire Regiment, remaining with this regiment until the end, which came during the advance in the last days of September. While attending to some wounded soldiers he was shot through the head by a sniper Like most South Africans, keen on Rugby football, he played for Caius in a strong year, and was one of the mainstays of the Hospital XV., captaining it in 1912-13. His abilities were of a high order, and both as house surgeon and house physician he earned distinction. But no one branch really appealed to him more strongly than another, and he had many interests outside his profession, making him one of the most popular men of his generation. The officers of his regiment had a high regard for him as medical officer, and we are told that "his men simply loved him, and a private who had been under his care nearly wept when he heard that he had been killed."

LIEUTENANT J. R. SPENSLEY.

Lieutenant J. R. Spensley, whose death was officially reported on Oct. 18th, and of whom a biographical notice appeared in our columns on Oct. 30th, was still lying seriously wounded in the officers' prison at Mainz on Oct. 20th, as we now hear from his mother. We wish him a good recovery and the unusual satisfaction of reading his own obituary notice.

Medical News.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).—The following award has been made on the results of the recent examination for scholarships:—

University Entrance Scholarship (value £50) for Anatomy and Physiology.—Douglas Crawford Clark, King's College.

THE NORWOOD SANATORIUM.—The ninth annual report of the Norwood Sanatorium for the treatment of alcoholism and other drug habits has just been issued for circulation amongst medical men. Dr. Francis Hare gives a medical digest of the 194 cases admitted during 1914, as well as a summary of the results obtained in alcoholism since September, 1905. The concluding sentence runs:—

> The influence on prognosis of the form of alcoholism can almost be deduced from what has preceded. The result is worst in true dipsomania. In pseudo-dipsomania and chronic alcoholism they are practically the same. It is, I think, however, safe to assume that in any individual case, other things being equal, the prognosis is bad just in proportion as the temperamental factor, as distinguished from mere habit, is operative.

In a supplement is an essay of 22 pages on the causation and treatment, preventive and abortive, of delirium tremens, in which is contained the following definition:—

> Delirium tremens depends, primarily or remotely, upon the acquisition of high tolerance of alcohol, and secondarily, or proximately, upon a sudden fall in the accustomed quantity of alcohol circulating in the nervous system.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general meeting of the association will be held on Tuesday, Nov. 23rd, at 3 P.M., at 11, Chandos-street, Cavendish-square, London, W., Lieutenant-Colonel David G. Thomson presiding. On the same day at the same place will meet: The Educational Committee, at 11.15 A.M.; the Parliamentary Committee, at 12 noon; and the Council meeting, at 1.45 P.M. At the general meeting Colonel Thomson will read a paper describing the "Conversion of a County Asylum into a War Hospital for 1050 Sick and Wounded Soldiers in the year 1915."

Mr. John Henry Square May, M.R.C.S., L.S.A., J.P., senior surgeon to the Plymouth Public Dispensary, celebrated his golden wedding on Nov. 4th.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 3RD.

National Insurance in Ireland.

Mr. LUNDON asked the Secretary to the Treasury whether any agreement had yet been come to between the Irish Insurance Commissioners and the Medical Association with regard to the working of the National Insurance Act, and if so on what terms; and if not what was the cause of the delay in completing the agreement.—Mr. CHARLES ROBERTS, in a written answer, stated that the adjustment of details in regard to the proposed scheme of medical certification in Ireland was proceeding through conferences between the Irish Insurance Commissioners, the medical profession, and the Approved Societies, and he understood that satisfactory progress was being made.

Mr. CREAN asked whether the salaries due on July 31st, 1915, to the late panel doctors of the city of Cork were still unpaid; if so, what was the cause of the delay; and whether the present difficulty with the Irish medical profession was mainly due to the dilatory way in which the business of the department had been conducted.—Mr. ROBERTS replied that he was communicating with the Irish Insurance Commissioners, and would inform the honourable Member of the result.

THURSDAY, NOV. 4TH.

Price of Quinine.

Commander BELLAIRS asked the President of the Board of Trade whether his attention had been drawn to the increase in the price of quinine, which was an Imperial product, and whether he would cause inquiries to be made as to whether this rise had been brought about by actions of individuals who were exploiting the present war.—Mr. PRETYMAN, who replied, said: The advance in the price of quinine has been under the consideration of His Majesty's Government, and it was recently decided to prohibit the export of that commodity. Since that decision became known there has been a sharp fall in price.

Supply of Optical Glass.

Sir PHILIP MAGNUS asked the Under Secretary of State for War whether he could inform the House as to the steps that had recently been taken to render the supply of British-made optical glass for the manufacture of optical instruments sufficient to meet the requirements of His Majesty's naval and military forces; whether the negotiations under consideration some months ago for the further supply of optical glass had been concluded; and whether, consequently, the amount of such glass now produced in this country was sufficient to keep pace with the Government's full needs.—Mr. LLOYD GEORGE replied: The negotiations referred to in the question are progressing satisfactorily. Arrangements have already been made with the object of producing the maximum possible supply of optical glass to meet the requirements of His Majesty's naval and military forces. If, however, the honourable Member knows of any new source of supply of an experienced and established nature I shall be glad to hear of it.

Mr. R. MCNEILL asked why a very considerable number of periscopes were recently offered and refused.—Mr. LLOYD GEORGE said he could not imagine the refusal of periscopes. If the honourable Member would give him any information about it he would inquire.

Sir PHILIP MAGNUS: May I take it that the present supply is not adequate to the requirements?—No reply was given.

Dentists and Recruiting.

Mr. RAFFAN asked the Under Secretary of State for War whether, in view of the dental requirements of the community and the consequences which would follow if these

were not adequately provided for, practitioners in dentistry would be starred as men to be exempted from military service under Lord Derby's scheme of recruiting.—Mr. TENNANT replied: The dental requirements of the community have not escaped the attention of the Army Council, and I can assure my honourable friend that every case of the kind he has in mind will, if represented to the proper authority, receive due consideration. It is not intended that the facilities of consulting dentists shall be arbitrarily curtailed.

Mr. RAFFAN: Am I to understand that cases will only be considered individually?—Mr. TENNANT: I do not follow the gist of my honourable friend's question.

Eastbourne Workhouse and Infirmary.

Mr. RUPERT GWYNNE asked the Under Secretary of State for War whether he was aware that in July last the Army Council, after having sent down their inspector, notified the Eastbourne board of guardians that they desired to take over the whole of the workhouse and infirmary for use as a military hospital, and that the guardians, having removed all the inmates at the shortest possible notice and having dispersed the officials, had now been informed that the institution was not fitted for military purposes and would not be required; and would he state who was responsible for the unnecessary inconvenience caused thereby and who would bear the cost of the same.—Mr. TENNANT, in a written answer, stated: I find that the facts are substantially as stated by the honourable Member. The measures necessary to obtain the use of the building were taken with the concurrence of the Local Government Board, but when the estimate of the necessary structural alterations was received it was considered that the cost of adaptation was too high to justify proceeding with the scheme. Whether the inmates were removed and the officials dispersed on the initiative of the guardians or at the instance of the War Office I am not informed, but to proceed with the scheme irrespective of financial considerations was, of course, impossible. I am making further inquiries into the matter.

Cost of National Insurance.

Sir J. D. REES asked the Comptroller of the Household, as representing the National Health Insurance Commissioners, whether the Government proposed to introduce emergency legislation in order to effect savings in the cost to the taxpayer of the National Insurance Act; whether treatment of consumptive patients would already have been suspended had not money for this purpose been transferred, whether or not legitimately, from another fund; whether there was a deficiency of over £50,000 last year in the drug fund; whether in consequence chemists were being asked to accept 75 per cent. of their accounts; whether there was a deficiency on administration in 1914 of about £8000; whether the Treasury made any, and if so what, grant, and by what authority, to meet such deficiency; whether any grants had been made, or were contemplated, to help Approved Societies because their funds had been used up by panel patients; and whether the position was one calling for urgent inquiries and drastic reform, suspension, or repeal.—Mr. CHARLES ROBERTS replied: As regards the first of these seven questions, I am unable to make any statement. The answer to each of the remaining parts (except the fourth, in which I do not understand the honourable Member's reference) is in the negative. I gather that the honourable Member is referring generally to certain misleading statements which have obtained circulation in the press as to the financial position of the London Insurance Committee, and I am sending him for his information a copy of a statement on this subject issued by agreement between the committee and my department.

Maternal Mortality.

Sir J. D. REES asked the Comptroller of the Household, as representing the National Health Insurance Commissioners, whether, notwithstanding the grant of maternity benefit under the National Insurance Act, maternal mortality had increased since the passing of the Act; and whether these benefits and other benefits provided by the Act were to be continued after it had been proved by experience that pecuniary aid did not result in the anticipated improvement.—Mr. CHARLES ROBERTS replied: I am not in possession of any information which establishes the suggestion made in the first part of this question; nor is sufficient experience of the effect of the payment of benefits yet available to support any general conclusion on the points referred to in the second part.

WEDNESDAY, NOV. 10TH.

Head Wounds amongst the Troops.

Mr. ANNAN BRYCE asked the Under Secretary for War, whether he had now ascertained the percentage of head wounds in British and French hospitals, respectively; whether there was any communication between the British and French military authorities with regard to the adoption of appliances which might be useful in war; and on what date the first order for steel helmets was placed by the British Government.—Mr. TENNANT replied: I have no information regarding the percentage of head wounds in the French army. In the British army in France the proportion of such wounds during the last three months has been 15 per cent. As regards the second part of the question, the military attachés of the two Powers are in a position to get information on the points mentioned, and this they communicate to those concerned. I have already stated that I am not prepared to answer questions as to the date when orders for articles of equipment have been placed.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BERG, G. C., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

BRANDER, ROBERT WILLIAM, M.B., Ch.B. Glasg., has been appointed Resident Surgeon at Mount Stuart Naval Hospital, Rothesay.

BUATIA, S. L., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant in the Children's Department to St. Thomas's Hospital.

BYRNE, C. H. C., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

GIMLETTE, G. T., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

HIGGINS, F. E., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Obstetric House Physician to St. Thomas's Hospital.

HILL, C. GARDINER, M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

MARSHALL, W. H., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Obstetric House Physician to St. Thomas's Hospital.

ROMANIS, W. H. C., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

TAYLOR, W. R., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Dalmellington District of the county of Ayr.

THOMAS, W., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

VEVERS, G. M., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BENGAL, INDIA, ASANSOL MINES BOARD OF HEALTH.—Chief Sanitary Officer for Asansol Mining Settlement. Salary Rs. 1200 a month, with house.

BIRKENHEAD, BOROUGH HOSPITAL.—Junior House Surgeon. Salary £180 per annum, with board and laundry.

BRADFORD, CITY OF.—Two Temporary Female Medical Officers. Salary 8 guineas per week.

BRISTOL GENERAL HOSPITAL.—House Surgeon for six months. Board, residence, &c., provided.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Female House Physician and Anæsthetist. Salary £150 per annum, with board, rooms, attendance, and laundry.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry. Also Dental House Surgeon for six months. Salary at rate of £120 per annum, with apartments, board, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CHELSEA HOSPITAL FOR WOMEN.—Anæsthetist.

CHESTER ROYAL INFIRMARY.—Female House Surgeon and Female House Physician. Salary £115 and £100 per annum respectively, with board, apartments, and washing.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Assistant Resident Medical Officer. Salary at rate of £150 per annum, with board, residence, and laundry.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—House Surgeon. Salary £250 per annum, with board, residence, &c.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with board, residence, attendance, and washing. Also Assistant House Surgeon for six months. Salary £120 per annum, with residence, board, and washing.

DUNDEE, BALDOVAN CERTIFIED INSTITUTION FOR THE TREATMENT AND EDUCATION OF THE FEEBLE-MINDED.—Resident Medical Superintendent. Salary £400 per annum, with board and lodgings.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer. Salary £200 per annum, with residence and board.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant House Surgeon for six months. Salary at the rate of £105 per annum.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.

MANCHESTER CITY.—Coroner. Salary £800 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER ROYAL INFIRMARY.—Resident Surgical Officer, unmarried, at Convalescent Hospital, Cheadle. Salary £225 per annum, with board and residence.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

MORPETH, NORTHUMBERLAND COUNTY ASYLUM.—Female Junior Assistant Medical Officer. Salary £250 per annum, with board, apartments, laundry, and attendance.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female House Physician, Two House Surgeons, Obstetric Assistant, and Pathologist, all for six months. Also Senior Clinical Assistant for Outpatient Department, Tuesdays and Fridays, and Anæsthetist.

NORFOLK, HUNSTANTON, FAKENHAM, AND WELLS.—Medical Officers for 2 1st South Midland Mounted Brigade.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, washing, and attendance.

PEMBROKE COUNTY.—Female Assistant County Medical Officer and Assistant School Medical Officer. Salary £300 per annum, with £100 a year for travelling expenses.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary £350 per annum.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Junior Female House Surgeons, unmarried. Salary £100 and £80 per annum respectively, with board, residence, and laundry.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

STOKE-ON-TRENT COUNTY BOROUGH.—Resident Assistant Medical Officer at Stanfield Sanatorium. Salary at rate of £350 per annum inclusive, or £250 per annum, with board and residence.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Senior Resident Medical Officer. Salary £250 per annum, with board, lodging, and washing. Also House Physician. Salary £200 per annum, with board, lodging, and washing.

WEST HAM AND EASTERN GENERAL HOSPITAL.—House Physicians. Salary £120 per annum, with board, residence, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WINDSOR, KING EDWARD VII. HOSPITAL.—House Surgeon. Salary £100 to £120 per annum, with board, residence, and washing.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Bungay, in the county of Suffolk; and at Preston (West), in the county of Lancaster.

Births, Marriages, and Deaths.

BIRTHS.

BUCK.—On Oct. 30th, at Cambridge-road, Hove, the wife of Major Arthur Buck, R.A.M.C. (T.), of a son.

EDWARDS.—On Nov. 6th, at Grosvenor-street, Mold, N. Wales, the wife of Roger Bellis Edwards, M.B., B.S. Lond., of a son.

FOTHERGILL.—On Nov. 2nd, at Calverley-crescent, Tunbridge Wells, the wife of Dr. Claud Fothergill (temporary Lieutenant, R.A.M.C.), of Hensol, Chorley Wood, of a daughter.

MCNABB.—On Nov. 3rd, at Withington Cottage, Withington, Manchester, the wife of Dr. McNabb, of a son.

NOYES.—On Nov. 2nd, at Marine-parade, Worthing, the wife of H. F. G. Noyes, M.B., B.C. Cantab. (temporary Lieutenant, R.A.M.C.), of a daughter.

WARNER.—On Nov. 4th, at Rydal, Woodford Green, the wife of Harold P. Warner, M.B., B.S. Lond., of twin sons.

WOODWARK.—On Nov. 2nd, at Queen Anne-street, Cavendish-square, W., the wife of A. S. Woodwark, M.D. Lond. (temporary Lieutenant-Colonel, R.A.M.C.), of a daughter.

DEATHS.

ARCHER.—On Nov. 2nd, the result of an accident, Ernest George Archer, M.R.C.S., L.S.A. Lond.

BUCHANAN.—At 13, Berkeley-terrace, Glasgow, W., on Nov. 9th, Alexander Macgregor Buchanan, M.A., M.D., F.R.F.P.S.G., Professor of Anatomy, Anderson College Medical School. Funeral private. No flowers by request.

COATS.—On Nov. 2nd, at a nursing home, Edinburgh, George Coats, F.R.C.S. Eng.

DAVIS.—On Nov. 2nd, at Eastbourne, suddenly, Robert Davis, M.R.C.S., of Darrickwood, Orpington, in his sixty-fourth year; eldest son of the late Robert Davis, surgeon, of Wrekenton House, Gateshead.

OLIVER.—On Nov. 7th, at Skinner House, Lydd, Kent, Dr. Herbert S. Oliver, in his 51st year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

VITAL STATISTICS OF THE STRAITS SETTLEMENTS.

Mr. R. J. Wilkinson, Colonial Secretary, has prepared for presentation to Parliament a report on the affairs of the Straits Settlements (Singapore, Penang, Malacca, Labuan, Cocos Islands, and Christmas Island) for the year 1914. The estimated population of the colony is now, he states, 759,067. The number of births and deaths registered during the year was 22,080 and 25,880 respectively, the figures for the preceding year having been 19,964 and 25,950. The birth-rate has increased from 26·87 to 29·09 per 1000. The death-rate has decreased, having fallen from 46·45 in 1911, 39·01 in 1912, and 34·93 in 1913, to 34·09 per 1000 in the year under review. The principal causes of death were malaria (3548 cases), infantile convulsions (4707), tuberculosis (2079), beri-beri (1482), and dysentery (1186). Dangerous infectious diseases notified in the colony during the year caused 36 deaths from small-pox, 282 from cholera, and 15 from plague. The corresponding figures in 1913 were 27, 85, and 1. Immigrants arrived from China to the number of 147,150, a decrease of 38·9 per cent., as compared with the figure for 1913, and of 45·4 per cent., as compared with 1911, the highest yet recorded. Adult males formed 82 per cent. and adult females 9 per cent. of the immigrants. Immigration was prohibited from the outbreak of war in August, and the prohibition continued to the end of the year. The number of immigrants from India was 51,217, falling short of the return for 1913 by 67,366. This large decrease was chiefly due to the fact that after August 6th no immigrants from Madras or Negapatam arrived owing to the total suspension of the immigration of deck passengers from those ports. During the year there was, as regards adults, an excess of emigrants over immigrants of 12,599, and as regards children an excess of immigrants over emigrants of 743. In 1913 the excess of immigrants over emigrants was 42,892 adults and 5601 children. The total number of immigrants that arrived at Penang from Southern India in 1914 was 51,217, as compared with 118,583 in 1913, a decrease of 67,036. Even if the immigration of deck passengers from Madras and Negapatam had not been discontinued in August, there are indications that the number would have been very considerably less than in 1913 owing to a greatly diminished demand for labour on estates. The number of Indians leaving the colony for Southern India was 63,073 (60,408 adults and 2665 children), as against 66,695 adults and 3395 children in 1913. Out of 36 steamers that arrived during the period Jan. 1st to August 6th, 16 were quarantined on arrival (3 for cholera, 2 for small-pox, and 11 for plague observation). The health on estates in Penang, Province Wellesley, and the Dindings was very satisfactory, and the death-rate in these districts was not as high as 50 per 1000 on any place of employment. The health conditions on estates in Malacca were, as usual, not so satisfactory as in the other settlements. The rainfall recorded in 1914 was as follows: Singapore, 85·84 inches; Labuan, 82·02; Penang, 89·54; Province Wellesley, 117·71; Malacca, 83·50; and Dindings, 74·27. The mean temperature of the air throughout the year was 83·2° F. The maximum recorded was 97·5° in Province Wellesley on Feb. 21st and 97° in Singapore on May 13th; the minimum was 67° in Malacca on August 7th.

TREATMENT OF CARBUNCLE WITH HYPERTONIC SALINE.

To the Editor of THE LANCET.

SIR,—Having been lately a victim to this trouble I found great benefit from hypertonic saline hot compresses after making small incision. The sloughs softened down, a free flow of serum and pus followed, with speedy relief and practical cure in a few days. I used very strong solution of NaCl., ʒi.–Oi., and nat. cit., and also took calcium sulphide internally and cut off sugar from my diet.

I am, Sir, yours faithfully,

Colwyn Bay, Nov. 6th, 1915. W. B. RUSSELL.

A NEW THEORY OF HEREDITY.

A PAMPHLET dealing with a new theory of heredity called "The Psychical Theory of Heredity," has been sent to us by the author, Mr. John Scouller, of Sydney. We confess to being unable to understand the theory, which has already been mooted by the author in the *Medical Journal of Australia* of Jan. 30th and Feb. 6th of this year, but the pamphlet, which gives a brief outline of the author's ideas, can be purchased from the Shipping Newspapers, Limited, 16, Bond-street, Sydney. A larger explanation of the work is promised in the near future.

"AGUA DE CASAES MINERAL WATER."

IN our analytical notices last week we gave an analysis of this water in terms of ions. The ions found are probably combined as salts in the following quantities, calculated as grains per gallon:—

Calcium sulphate	20·40
Iron persulphate...	12·25
Magnesium sulphate...	6·30
Sodium chloride	2·30
Total salts...	41·25

It is noteworthy that the iron salt is accompanied by the saline purgative, magnesium sulphate.

PATHOLOGICAL SURNAMES.

To the Editor of THE LANCET.

SIR,—Searching at random in the pages of the London Postal Directory, I have just come upon the following "pathological surnames," which may possibly point to the existence of hereditary peculiarities in families. The names are Blue, Blind, Bunyon, Crick, Feaver, Sore, Stout, and Stenchen, which last may be German in origin. A detailed search would reveal more names, but probably not very many. People do not like ugly patronymics; they change them or spell them so differently as to render them unrecognisable in a generation. In the United States they are manufactured, not always according to the well-established laws governing English surnames.

I venture to suggest that any curious surname, either place-name or nickname, might be a guide in diagnosis. Blood might indicate hereditary hæmophilia or a warlike temperament. Tough old stocks might be indicated by such names as Wick, which is Danish for a settlement, and Kemp, a Norse warrior. Names ending in "dale" indicate a hardy origin in the North of England.

I am, Sir, yours faithfully,

Nov. 6th, 1915. A STUDENT OF NAMES.

To the Editor of THE LANCET.

SIR,—Reading your annotation bearing the above title in the current issue of THE LANCET, I bethought me of a surname prevailing in Wales which had always puzzled me as to its origin. Your statement that many Welsh surnames were bestowed out of derision supplies, perhaps, a solution. The word "hagr" (*ugly, deformed*—Richards; *ugly, unseemly*—Spurrell) is mispronounced colloquially "haggar," and thus is spelt the surname at which I have hinted. There is, however, a variant spelling—"Hagger."

The practice of clapping nicknames upon people was quite rife in the locality in which I spent my boyhood half a century back. An unseemly ebullition of pomposity for, example, gained for its demonstrator the appellation of "Y Bôd" (The Being). But I never knew how an uncle of mine had won his sobriquet of "Y Prophwyd" (The Prophet), nor can I explain why another worthy, if halting, resident was known as "Yr Apostol Cloff" (The Lame Apostle).

To be put upon the track of any literature dealing with the imposition by law of surnames would be gratifying.

I am, Sir, yours faithfully,

Nov. 6th, 1915. WELSHMAN.

To the Editor of THE LANCET.

SIR,—With reference to your annotation with the above heading I have not seen the origin of the name "Zeppelin" discussed. The nearest I can find is an Italian word "Zeppolino," a sort of wild vine or grape, and also "mettere zeppa" to sow discord, and "esser una mala zeppa" to be a rascal. The name may not, however, be properly traceable to Italian at all.

Everyone has read of Captain Blood who stole the crown from the Tower, and an English general bears the same terrific name. The name of "Death" is not so rare as your note might make it appear. For a shopkeeper the name is not attractive, but I remember having seen one facia with the name written in gothic characters and scrolls and flourishes so artistically that one lost sight of the "Death" in the "Glory." I am informed that a well-known girls' school was kept for years by a lady named Death. "Pain" is perhaps a pathological name. "Skull" may also be found in the Directory.—I am, Sir, yours faithfully,

Nov. 8th, 1915. INTERESTED.

Simla draws attention to conditions which are at the present moment receiving the notice of the Central Medical War Committee ("War Emergency Committee"). It is one of the objects of that Committee to get over, as far as possible, the difficulties caused by inequality of distribution.

W.—Very few surveyors will now allow a deduction to be made in the income-tax return for the depreciation of the medical man's motor-car. The practice is for the outlay on a first car to be deemed to belong to capital account, and to claim the full amount of the cost of a subsequent car, less the sum received for the sale of the old car. We have not seen any decided cases on the point.

H. C.—As the surname can hardly be called pathological it would perhaps be wiser not to publish the note.

M. S. T.—We cannot find any notice of the home in question in our columns, but will make inquiries.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Lord Rayleigh, O.M.: On the Theory of the Capillary Tube.—Prof. C. H. Lees: On the Effect of the Form of the Transverse Section on the Resistance to the Motion of an Elongated Body Parallel to its Length through a Fluid whose Viscosity is not Negligible.—Prof J. Joly: (1) On a Method of Estimating Distances at Sea in Fog or Thick Weather; (2) On a Method of Avoiding Collision at Sea.—Mr. S. W. Richardson: The Flow of Electricity through Dielectrics (communicated by Prof. Schuster, secretary to the Royal Society).—Mr. S. Chapman: On the Kinetic Theory of Gaseous Viscosity and Thermal Conduction, and the Law of Distribution of Molecular Velocities in the Disturbed State (communicated by Sir J. Larmor).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 16th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for the Election of Candidates to the Fellowship.

Wednesday, Nov. 17th.

HISTORY OF MEDICINE (Hon. Secretaries—Leonard G. Guthrie J. D. Rolleston): at 5 P.M.
Books, MSS., &c., on view at 4.30 P.M
Dr. Norman Moore: Harvey.
Dr. Henry Barnes: (1) Autograph Letter of Douglas on Inoculation for Small-pox, 1755; (2) Anthony Askew, M.D., F.R.S., and his Library.
Mr. Glanvill Corney: A Remarkable (reputed) Potion-bowl from Tahiti.
Dr. Charles Singer: Thirteenth Century Figures illustrating Medical Life (from an Unpublished Source).
Dr. Charles Greene Cumston (Geneva): A Hitherto Unpublished Portrait of Bellini.

Thursday, Nov. 18th.

DERMATOLOGY (Hon. Secretaries—A. M. H. Gray, J. E. R. McDonagh): at 5 P.M.
Exhibition of Cases (at 4.30 P.M.).

Friday, Nov. 19th.

OTOLOGY (Hon. Secretaries—W. M. Mollison, E. D. D. Davis): at 5 P.M.
Cases and Specimens:
Will be shown by Mr. H. Lawson Whale, Mr. E. D. D. Davis, &c.
Discussion:
On Skin Grafting in Mastoid Operations will be opened by Mr. H. J. Marriage.

ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.
Papers:
Dr. E. P. Cumberbatch: A Criticism of the Methods of Testing the Reactions of Muscles, and of the Interpretation of the Results, with a Reference to the Electrical Examination of Nerve Injuries in War.
Dr. Ettie Sayer: The Organisation of Electrical Departments in Military Hospitals.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Discussion on Gunshot Wounds of the Head (introduced by Lieutenant-Colonel P. Sargent, R.A.M.C., and Lieutenant-Colonel G. Holmes, R.A.M.C.). Followed by Mr. L. B. Rawling, Dr. W. Harris, Mr. W. H. H. Jessop, Major W. Pearson, R.A.M.C., and others.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Mr. E. Heron-Allen and Mr. A. Earland: The Foraminifera of the Shore Sands and Shallow Water Zone of the South Coast of Cornwall.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Paper:—Prof. A. Castellani (Naples): Combined Vaccinations.

ROYAL METEOROLOGICAL SOCIETY, 70, Victoria-street, Westminster, S.W.

WEDNESDAY.—7.30 P.M., Papers:—Mr. J. S. Dines: The Mounting and Illumination of Barometers and the Accuracy Obtainable in the Readings.—Mr. N. A. Comissopulos: On the Seasonal Variability of Rainfall over the British Isles.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Goulstonian Lectures:—Dr. G. Holmes: Acute Spinal Lesions, with Special Reference to those of Warfare. (Lectures I. and II.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—4 P.M., Dr. C. Kempster: X Rays—Measurement of Dose.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Treatment of Eczema.

CHADWICK PUBLIC LECTURES, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

WEDNESDAY.—8.15 P.M., Mr. W. E. Riley: Some Conclusions on Housing our Workers (illustrated by lantern slides).

For further particulars of the above Lectures, &c., see Advertisement Pages.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 10th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 4	29·856	N.E.	...	73	50	39	42	43	Fine
,, 5	29·990	N.E.	0·01	67	47	39	39	39	Cloudy
,, 6	30·174	N.E.	...	57	49	39	40	40	Overcast
,, 7	30·020	S.	...	52	47	35	37	38	Overcast
,, 8	29·880	S.W.	...	61	52	55	44	44	Overcast
,, 9	29·406	S.W.	0·31	56	53	44	49	51	Cloudy
,, 10	29·224	S.W.	...	79	50	38	41	42	Cloudy

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

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OWING to the alteration in the Inland Newspaper Postal rate, the postage on each copy of THE LANCET will in future be 1*d.*, and sometimes 1½*d.*

The revised Inland Subscription rates are:—

One Year	£1	3	3
Six Months	0	13	8
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TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

NEWSPAPERS FOR NEUTRAL COUNTRIES.

THE Secretary of the War Office has issued the following order:—

The public are informed that on and after Saturday, November 6th, newspapers, magazines, books, and other printed publications (other than trade circulars) will not be sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. Persons desiring to send newspapers, &c., to neutral European countries should, therefore, give their orders for execution to publishers or newsagents who have obtained such permission.

The Publisher of THE LANCET has obtained the required permission of the War Office, and he will forward copies direct from the Office to any neutral country on receipt of instructions.

The following magazines, journals, &c., have been received:—Medical Journal of South Africa, Public Health, American Journal of Medical Sciences, Revue d'Hygiène et Police Sanitaire, Medical Review, Edinburgh Medical Journal, Journal of State Medicine.

Communications, Letters, &c., have been received from—

A.—Ardath Tobacco Co., Lond.; American Medical Association, Chicago; *The Athenæum*, Lond., Manager of; Army Medical Service, Director-General of; Dr. J. L. Aymard, Johannesburg.

B.—Dr. J. Linton Bogle, Louth; Mr. Frank E. Beddard, Lond.; Dr. Robert A. Bolam, Newcastle-on-Tyne; Board of Agriculture and Fisheries, Lond.; Captain C. W. G. Bryan, R.A.M.C.; Mr. George Bethell, Lond.; Messrs. Blundell and Rigby, Lond.; Bristol University, Registrar of; Dr. S. A. Bonnerjee, Lond.; Mr. F. W. Braune, Lond.; Fleet-Surgeon A. C. Bean, R.N., Worthing; Bradford Corporation, Medical Officer of Health of; Messrs. Burroughs Wellcome and Co., Lond.; Mr. G. Brown, Exeter; Lieutenant-Colonel R. J. Blackham, R.A.M.C., Salisbury; Messrs. W. H. Bailey and Son, Lond.; Mr. S. Bowler, Leicester; Borough Hospital, Birkenhead, Matron of; Mr. H. Bazett, Lond.

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E.—Examining Board of the Royal College of Physicians and the Royal College of Surgeons, Lond., Secretary of; Captain R. C. T. Evans, R.A.M.C.

F.—Mr. Charles Forbes, Aberdeen; 4th London General Hospital R.A.M.C.(T.), Registrar of; Lieutenant-Colonel F. E. Fremantle, R.A.M.C., Egypt; Fellow's Medical Manufacturing Co., New York; Captain H. Fulham-Turner, R.A.M.C., Salisbury; Dr. R. W. Fisher, Frimley; Messrs. J. Flook and Sons, Bristol; Mr. F. Field, Lond.

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I.—Lieutenant-Colonel L. Irvine, R.A.M.C., Lond.; Incorporated Soldiers' and Sailors' Help Society, Lond., Secretary of.

J.—Jessop Hospital for Women, Sheffield, Secretary of; Journal of Nervous and Mental Disease Publishing Co., New York.

K.—Dr. T. N. Kelynack, Lond.; Lieutenant A. B. Kidd, R.A.M.C., France; King Edward VII. Hospital, Windsor, Secretary of; Messrs. D. J. Keymer and Co., Lond.

L.—Mr. J. B. Lawford, Lond.; Dr. S. C. Lawrence, Lond.; London Dermatological Society, Hon. Secretary of; Mr. J. Ludley, Lond.; Local Government Board, Lond., Secretary of; Dr. Edward J. Lloyd, Bangor; City of London, Medical Officer of Health of; Messrs. H. K. Lewis and Co., Lond.; Mrs. Letts, Paisley; Surgeon P. H. Lomass, R.N., Grimsby; London Throat Hospital, Secretary of; Messrs. Lee and Martin, Birmingham; Leeds Public Dispensary, Secretary of;

M.—Dr. James McIntosh, Lond.; Dr. John C. McVail, Edinburgh; Dr. Alastair MacGregor, Lond.; Private Ward Muir, R.A.M.C., Lond.; Dr. R. O. Moon, Lond.; Messrs. Morson and Son, Lond.; Hon. Francis McLaren, M.P., Lond.; Mersea Island Fisherman's Co-operative Society, Lond., Secretary of; Mr. F. H. Mertens, Lond.; The Maruzen Co., Tokyo; Manchester Northern Hospital, Secretary of; Major J. T. J. Morrison, R.A.M.C.(T.), Birmingham; Maltine Manufacturing Co., Lond.; Messrs. Mather and Crowther, Lond.; Medical Research Committee, Lond.; Dr. Jivraj N. Mehta, Lond.; Messrs. Horace Marshall and Sons, Lond.

N.—National Health Insurance Commission (England), Lond., Secretary to; Captain A. W. Nuthall, R.A.M.C.(T.).

O.—Mrs. O'Meara, Luton; Dr. C. F. O'Gorman, Bourne End.

P.—Mr. Leslie Paton, Lond.; Mr. C. Harold Partridge, Ilfracombe; Messrs. G. P. Putnam's Sons, Lond.; Mr. Francis R. Packard, Philadelphia; Mr. J. Herbert Parsons, Lond.; Pathological Laboratory, Cambridge, Secretary of; Mr. J. A. Poynder, Caversham; Dr. James J. Paterson, Maidenhead.

Q.—Queensland, Government Statistician, Brisbane.

R.—Dr. W. H. R. Rivers, Lond.; Royal Meteorological Society, Lond.; Royal Society, Lond.; Mr. S. C. Ranner, Lond.; Lieutenant Arthur Rowe, R.A.M.C.; Mrs. L. A. Roberts, Newport; Dr. Clive Rivière, Lond.; Major M. B. Ray, R.A.M.C., France; Messrs. Reynell and Son, Lond.; Rhondda Urban District Council, School Medical Officer of; R. E. N. W.; Royal Institute of Public Health, Lond., Acting Secretary of; Mr. H. Powell Rees, Lond.

S.—Dr. Harold Spence, Lond.; Messrs. John A. Stewart and Campbell, Perth; "Simla"; Messrs. Staples and Co., Lond.; Dr. David Sommerville, Lond.; Dr. J. D. Smylie, Gibraltar; Mr. A. J. L. Speechly, Hutti; Miss Spensley, Weston-super-Mare; S. W. H.

T.—Mr. J. Thin, Edinburgh; Surgeon-Major Taylor, France; Dr. John Tatham, Old Oxted; Captain H. L. Tidy, R.A.M.C.; Temp. Lieut. (India).

U.—Messrs. T. Fisher Unwin, Lond.

W.—Dr. C. M. Wenyon, Lond.; Mr. Philip W. Wilson, Lond.; Mr. C. P. G. Wakeley, Lond.; Lieutenant C. Wynn Wirgman, R.A.M.C.(T.); Lieutenant T. A. Watson, R.A.M.C., Lond.; Rev. E. Williams, Lond.; West Ham and Eastern General Hospital, Stratford, Secretary of; Mr. E. S. Weymouth, Lond.; Dr. J. A. Wilson, Warrington; Professor Sims Woodhead, Tipperary; Wellcome Bureau of Scientific Research, Lond., Secretary of; Dr. F. Parkes Weber, Lond.; Dr. Gordon Ward, Sevenoaks; Mr. Walter G. Walford, Lond.; Dr. Richard Warren, Lond.

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